

COUNTY PALATINE OF LANCASTER.

REPORT

OF THE

MEDICAL OFFICER OF HEALTH

FOR THE YEAR 1898.

WITH STATISTICAL INFORMATION
AND SUMMARY OF REPORTS OF DISTRICT
MEDICAL OFFICERS OF HEALTH, &c.

(Presented to the County Council, November 2nd, 1899.)



PRESTON :

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PUBLIC HEALTH COMMITTEE.

The Chairman of the County Council :
The Right Hon. Sir J. T. Hibbert, K.C.B.

The Vice-Chairman of the County Council :
Sir W. H. Houldsworth, Bart., M.P.

Chairman of Committee :
Rev R. C. Fletcher, M.A., C.A.

Vice-Chairman :
R. Sephton, Esq., C.C.

COUNTY ALDERMEN—

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Rev. C. T. Royds, M.A.

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REPORT

OF THE

MEDICAL OFFICER OF HEALTH,

For the Year ending December 31st, 1898.

*To the Right Hon. the Chairman and Members of the County
Council of the County Palatine of Lancaster.*

GENTLEMEN,

I have the honour to submit to you my tenth Annual Report on the health and sanitary condition of the Administrative County for 1898. As in previous years, I have made a brief Summary of each Report received from District Medical Officers of Health, and compiled statistical information which will indicate the varying degrees of healthiness of the constituent districts of the County. It gives me pleasure to point out that the County death-rate for the past year was, with the exception of 1894, the lowest recorded since 1889.

Reports were received from all the districts within the County except Bolton (R.), which, on the 30th September, became incorporated with the County Borough of Bolton. Of the 134 Reports received, 91 were printed, 7 type-written, and 36 in manuscript. Much delay occurred in forwarding Reports, and it was not till the 6th of July that all the Reports had come in.

In compliance with Section 19 of the Local Government Act, seventeen Medical Officers of Health made special reports on various matters seriously affecting the health of their districts.

Monthly Returns of deaths and cases of infectious disease notified or ascertained have been supplied from all the County districts except Blackpool (B.), Lancaster (B.), and Little Crosby, and I take the opportunity of expressing my thanks to those Medical Officers of Health who have forwarded their Returns with regularity.

From the Exchequer Contribution Account, payments have been made towards the salaries of sanitary officials under Section 24 of the Local Government Act. The total payments to 106 Authorities—87 Urban and 19 Rural—amounted to £7,257 16s. 1d., of which Medical Officers of Health received £3,329 9s. 4d., and Inspectors of Nuisances £3,928 6s. 9d.

It is with satisfaction that I can again report a diminution in the death-rate from phthisis; the admittedly infectious character of the disease has induced many Authorities to adopt precautionary measures with a view to limiting its prevalence. Practical efforts, however, ought to include the provision of Sanatoria, which have already proved of immense value for curative and preventive purposes, and I hope that the County, either alone or joined with the County Boroughs, will take the matter into serious consideration.

The progress made towards providing hospital accommodation for the isolation of patients suffering from infectious disease has been most satisfactory, and I may mention that an additional population of 112,009 has received this protection against the spread of epidemic disease during the past year.

Activity has been shown in the Sanitary Administration of the County Districts, and attention has more especially

been paid to the improvement of artisan dwellings, better scavenging and drainage, and the provision of pure water supplies. The character of dairies and cowsheds does not show much improvement, and I do not think that the purity of milk will be ensured until greater power of control is given to the County Council, or to a body equally independent of local circumstances and conditions.

I am, Gentlemen,

Your obedient Servant,

EDWARD SERGEANT,

Medical Officer of Health.

Preston, October 19th, 1899.

THE COUNTY.

Area and Population.—During the year under review the Urban District of Astley Bridge and part of the Rural District of Bolton have been removed from the Administrative County, owing to the Bolton, Turton, and Westhoughton Extension Act, which came into operation September 30th, 1898. The result has caused a withdrawal from the Administrative County of 13,202 acres, and a population of 37,175. By the rectification of the boundaries of the Borough of Ashton-under-Lyne and the Urban District of Dukinfield (Cheshire), 5 acres and a population of 17 have been added to the County. The effect of these alterations is given in tabular form as under:—

	Area in Acres.		Estimated Population	
Bolton Rural	25,026	...	36,537	
Part added to Turton	12,379	...	5,562	
Part added to Westhoughton	1,213	...	800	
	<u>13,592</u>	...	<u>6,362</u>	
Part Bolton (R.) added to County Urban District	13,592	...	6,362	
Part Bolton (R.) added to County Borough of Bolton.....	11,434	...	30,175	
Astley Bridge added to County Borough of Bolton.....	1,768	...	7,000	
Withdrawn from Administrative County	<u>13,202</u>	...	<u>37,175</u>	

Ashton-under-Lyne (B.) Alteration:—

Transferred from Dukinfield (Cheshire) to Ashton-under-Lyne (B.)	11	...	62
Transferred from Ashton-under-Lyne (B.) to Dukinfield	6	...	45
Addition to Administrative County.....	<u>5</u>	...	<u>17</u>

There has, therefore, been a total loss to the County of 13,197 acres, and a population of 37,158. The County had, at the end of the year, a total area of 1,098,269 acres, and a population, according to the estimates of the local Medical Officers of Health, equal to 1,884,789. The total increase of the County population during 1897 was 52,547, which, after making the deductions as above mentioned, leaves a net increase of population over the previous year of 9,010. There are now in the County 133 sanitary districts represented by 19 Municipal Boroughs, 95 Urban, and 19 Rural Districts. Further particulars as to the area and population of these districts are given in the following table:—

	Area in Acres (per Census Returns .	Population Estimated by Medical Officers of Health, 1898.	Persons per Acre.	Acres per Person.
Municipal Boroughs ...	82,468	624,526	7.57	0.13
Urban Sanitary Districts	280,796	1,013,018	3.60	0.27
Rural Sanitary Districts	735,005	247,245	0.33	2.97
Administrative County..	1,098,269	1,884,789	1.71	0.58

Births registered in the districts supplying reports within the Administrative County amounted to 52,254, of which 45,873 were in the Urban and 6,381 in the Rural Districts. The birth-rate corresponded to 27.62 per 1,000 of the population, or 27.89 in the Urban and 25.8 in the Rural Districts. For some years there has been a gradual reduction taking place in the birth-rates, for instance, in 1897 the rates were 28.45 in the County, 28.65 in the Urban, and 27.29 in the Rural Districts, and for the last quinquennium the rates averaged 29.42 in the County, 29.76 in the Urban, and 27.62 in the Rural

Districts. The Registrar-General says that "the birth-rate in England and Wales in 1898 was 29·4 per 1,000 of the population, which is lower than in any year on record; compared with the average in the ten years 1888-97 the birth-rate in 1898 shows a decrease of 1·1 per 1,000." In 33 of the large English towns the birth-rate corresponded to 30·3 per 1,000, or 2·5 higher than the County Urban Rate. The sex of the children born is given in the following table:—

	Males.	Females.	Total.
Urban Districts	23,420	22,453	45,873
Rural Districts.....	3,288	3,093	6,381
County	26,708	25,546	52,254

The birth-rates (Tables I. and III.) varied from 47·0 Abram, 43·7 Ashton-in-Makerfield, 39·6 Orrell, 38·7 Pemberton, and 37·8 Standish-with-Langtree, to 18·0 Great Crosby, 17·8 Milnrow, 16·7 Moss Side, 15·7 Heaton Norris, 14·1 Childwall, 12·6 Grange, and 12·4 Little Crosby.

Deaths.—The number of deaths registered in the Administrative County was 31,372, or 1,329 less than the previous year, and the natural increase of births over deaths was 20,882. The sex distribution is shown as under:—

	Males.	Females.	Total.
Urban Districts	13,426	14,215	27,641
Rural Districts.....	1,832	1,899	3,731
County	15,258	16,114	31,372

The male births exceeded by 2.42 per cent. the female births, while the proportion of female deaths was 2.73 per cent. higher than that of males; the excess of female deaths in the Urban and Rural Districts corresponded to 2.85 and 1.79 per cent. respectively. In 1897 the mortality of males exceeded that of females by 4.63 per cent. in the Rural Districts.

The following table gives a comparative statement of the birth and death rates:—

	Birth-rate per 1,000 of the population.	Per 1,000 of the population.		Death-rate from the seven principal Zymotic Diseases.	Rate of Infant Mortality measured by the proportion of deaths of Infants under 1 year to 1,000 births.
		Urban Death-rate.	Rural Death-rate.		
England and Wales.....	29.4	18.3	16.0	2.22	161
		17.6			
33 large English Towns.	30.3	19.0	...	2.85	178
Administrative County of Lancaster.	Urban ..	27.89	16.80	...	1.99 173
	Rural ...	25.80	...	15.09	1.23 130
Urban & Rural Districts combined	27.62	16.58		1.89	168

The County deaths took place in the following age periods:—under 1 year, 8,783; 1 and under 5, 3,575; 5-15, 1,166; 15-25, 1,560; 25-65, 9,918; and 65 and upwards, 6,370. The gross death-rate for the Administrative County corresponded to 16.58 per 1,000, and, with the exception of 1894, was the lowest recorded since 1889. In the Urban

Districts the death-rate was 16·8, and in the Rural Districts 15·09. By deducting 1,563 deaths of persons not belonging to the Administrative County—which took place in workhouses, asylums, hospitals, and other public institutions—the corrected death-rate was only 15·75 per 1,000. The average for the County during the nine years 1889-97 was 18·4, or 1·82 higher than the rate for the year under report. The death-rate for England and Wales was 17·6, or 1·02 higher than the County rate, while 33 of the large English towns gave a rate of 19·0. The Registrar-General states that the death-rate of England and Wales in 1898 was lower than the rate in any previous year, excepting 1894, 1896, and 1897, and, compared with the average in the ten years 1888-97, the death-rate in 1898 shows a decrease of 0·8 per 1,000.

The highest death-rates were recorded in Abram 25·3, Gorton 20·7, Hindley 20·6, Ormskirk 20·3, and Crompton 20·0, while exceptionally low rates prevailed in Little Crosby 10·9, Wardle 10·8, Castleton 10·7, Sefton (R.) 10·5, Little Woolton 9·7, St. Annes-on-the-Sea 9·3, Carnforth 8·4, Great Crosby 8·2, Allerton 7·6, and Childwall nil.

Infant Mortality.—The proportion of deaths of children under the age of one year to 1,000 registered births was equal to 168 in the County, 173 in the Urban, and 130 in the Rural Districts. These rates, although slightly better than the previous year, when the County rate averaged 169 (Urban 174 and Rural 138), do not bear favourable comparison with 1896, when the County rate was 155 (Urban 161, Rural 121), or with the average of 156 for the nine years 1889-97. The infant mortality for the whole of England and Wales, with a rate corresponding to 161, and 178 in 33 large English towns, shows an appreciable increase as compared with 1897. A rate of 200 and upwards was attained in 13 districts, against 15 in 1897, 8 in 1896, and 23 in 1895. In the following districts a high infant death-rate prevailed, viz.: Abram 247, Farnworth 245, Gorton 242, Heywood (B.) 233, Little Lever 225, Skelmersdale 213, Ince-in-Makerfield 204, Leyland 202, Upholland 202,

Accrington (B.) 201, Brierfield 200, and Longridge 200 ; and the following districts had low rates, viz. : Wardle 88, Allerton 83, Carnforth 76, Ulverston 68, and Childwall nil. In the reports received from Accrington (B), Heywood (B), Lees, and Leyland the factory employment of mothers and consequent inattention to the nursing and feeding of infants is mentioned as the cause of many infant deaths. Much danger arises from want of cleanliness of the child's environment, &c., affecting, as it does, not infrequently, the wholesomeness of the infant food to such an extent as to set up fatal gastrointestinal symptoms. Dr. Jenkins (Lytham) suggests that a course of instruction should be given, under the auspices of the Council, on the importance of cleanliness, food, and all that concerns an infant. Certainly gross ignorance exists among a large proportion of mothers in the manufacturing districts of the County as to the feeding and general management of young children. Dr. Stanfield (Lees) is of opinion that the "high mortality of infants may, in part, be attributed to the fact that many of the mothers having to work in the factory, their children do not get a sufficiency of breast milk, nor is due care taken to provide an equally nourishing substitute."

The Seven Principal Zymotic Diseases, viz., small-pox, measles, scarlet fever, diphtheria, whooping cough, fever, and diarrhoea caused 3,594 deaths, or 11·4 per cent. of the deaths from all causes. These deaths were equal to a rate of 1·89 for the County, 1·99 for the Urban and 1·23 for the Rural Districts. There was a very gratifying reduction in the zymotic rate as compared with 1897, equal to 0·25 for the County, 0·23 in the Urban, and 0·39 in the Rural Districts. The comparison is also favourable when applied to the whole of England and Wales with a zymotic rate of 2·22, or 2·85 for the 33 large English towns. The improvement in the zymotic rate represents a saving to the County of 411 lives as compared with the previous year. Under the heading of "principal zymotic diseases," I may point out that "croup" is not included, and

the term "fever" does not embrace relapsing or puerperal fevers. The highest zymotic rates were recorded in:—Gorton (6·33), Abram (5·14), Little Lever (4·73), Ashton-in-Makerfield (4·65), Wigan (R.) (4·04), Haydock (3·85), Urmston (3·82), Aspull (3·79), Whitefield (3·63), Blackrod (3·58), Leigh (3·51), Litherland (3·36), Warrington (B.) (3·23), Eccles (B.) (3·22), Hindley (3·22), Atherton (3·14), Farnworth (3·08), Upholland (3·04), and Irlam (3·0). In the following districts the rates were low, viz.:—Withnell (0·57), Clitheroe (R.) (0·56), Lanesdale (R.) (0·54), Rainford (0·53), Great Crosby (0·52), Audenshaw (0·40), Birkdale (0·40), Wardle (0·24), Garstang (R.) (0·24), St. Amos-on-the-Sea (0·18), Ulverston (0·09); and there were no zymotic deaths registered in Billinge, Carnforth, Childwall, Croston, Fulwood, or Little Crosby. The zymotic death-rate for each County District is given in Tables I. and III., and below will be found the death-rates from each of the principal zymotic diseases, together with the corresponding rates for the whole of England and Wales:—

ANNUAL DEATH-RATE PER 1,000.

	Seven Principal Zymotic diseases.	Small-pox.	Measles	Scarlet Fever.	Diphtheria	Whooping Cough.	"Fever" (Typhoid, Typhus, & Continued Fever).	Diarrhoea.
Administrative County of Lancaster	1·89	0·0005	0·25	0·10	0·07	0·19	0·26	1·00
Urban Sanitary Dis- tricts	1·99	0·0006	0·27	0·10	0·07	0·20	0·26	1·06
Rural Sanitary Dis- tricts	1·23	nil	0·11	0·10	0·09	0·10	0·25	0·55
England and Wales...	2·22	0·01	0·41	0·11	0·21	0·31	0·18	0·96

Small-pox.—Again there has been a remarkable freedom from this disease, only 5 cases and 1 death being recorded in the following districts, viz., Heywood (B.) 3 cases 1 death, Leigh 1 case, and Sefton (R.) 1 case. In all these cases hospitals were available for their isolation, and with the stringent precautionary measures taken, no doubt were instrumental in preventing the spread of this loathsome disease. Although so few cases of small-pox have occurred during recent years, it must not be imagined that this happy immunity will continue. Experience shows that periodically epidemic extensions of the disease takes place, often characterised by great severity of symptoms.

Vaccination.—The growing disinclination to vaccination fostered by the incidence of small-pox being so light as compared with former years, and by the Vaccination Acts not having been enforced, has added greatly to the number of persons unvaccinated, and therefore susceptible to attack. The new Vaccination Act, instead of removing this danger, has been made less compulsory by the introduction of the Conscience Clause, which came into operation on the passing of the Act (August 12th, 1898). As you are aware, children born at that time were allowed four months for the purpose of obtaining Exemption Certificates. The appended summary, which I have been able to obtain through the courtesy of the County Constabulary Department, shows that a scramble for certificates took place during the months of grace allowed to parents, who in the past, from apathy or wilful neglect, had failed to protect their offspring. The certificates granted per month during 1899 seem to indicate a tendency for the number of conscientious objectors to increase rather than diminish. A Parliamentary paper recently issued shows that under the new Act there has been an increase of nearly 28 per cent. in the vaccination of the country taken as a whole. But it has been pointed out that in certain districts the effect of the Act has not been so favourable, and in Liverpool, for

SUMMARY showing Number of Exemption Certificates granted by Magistrates since the Vaccination Act, 1898, came into force, to the end of July, 1899.

DIVISION.	August, 1898.	Sept.	October.	Nov.	Dec.	January 1899.	Feb.	March.	April.	May.	June.	July.	Total.	Rate of Exemption Certificates granted per cent of the Population.
INCLUDING BOROUGH OF														
LONSDALE NORTH	6	3	10	1	1	..	1	1	1	..	18	0.01
LONSDALE SOUTH.....	6	16	40	2	1	1	1	2	1	1	71	0.12
GARSFANG	1	7	5	3	..	4	1	..	..	..	1	22	0.09
KIRKHAM	1	3	22	41	4	13	6	8	5	5	5	113	0.19
BLACKBURN LOWER.....	..	12	11	57	59	7	5	3	3	2	4	2	165	0.26
BLACKBURN HIGHER.....	..	9	15	2083	5794	17	7	30	65	52	58	78	8208	9.40
CHURCH.....	24	231	822	7	11	8	18	9	17	7	1151	1.34
ROSSENDALE	48	229	607	501	6	10	16	21	33	15	22	1508	2.11
LEYLAND.....	..	1	..	5	16	2	2	1	..	..	1	1	29	0.03
BOLTON	2	6	8	9	..	..	1	3	1	4	2	36	0.03
BURY.....	..	14	592	2472	2192	9	7	21	39	40	53	43	5482	6.47
ROCHDALE	24	811	5454	6	7	15	21	31	26	32	6427	5.73
ASHTON-UNDER-LANE.....	..	1	13	39	3212	3	3	32	20	33	62	30	3448	3.30
MANCHESTER.....	2	9	8	21	41	4	4	8	4	10	7	6	121	0.06
SEAFORTH	1	..	1	..	..	..	..	..	..	2	0.005
ORMSKIRK	3	14	45	6	3	2	4	3	2	4	46	0.09
PRESCOT	1	3	1	..	1	1	..	2	..	9	0.02
WIDNES.....	..	2	2	1	5	..	2	4	2	..	1	1	20	0.04
WARRINGTON.....	..	1	3	9	25	9	7	2	7	5	3	3	71	0.05
WIGAN	1	15	19	230	5	4	1	6	4	6	3	291	0.28
TOTAL.....	2	102	961	6425	18502	90	91	153	224	231	268	241	27,290	1.65
PERCENTAGE EACH MONTH	0.0001	0.006	0.05	0.39	1.14	0.005	0.005	0.009	0.01	0.01	0.01	0.01		

instance, owing mainly to the closing of the public vaccination stations, Dr. Hope (Medical Officer of Health) reports a falling off in vaccination equal to 22 per cent., "in other words, the loss in Liverpool is almost as great relatively as the gain has been to the whole country."

Measles gave rise to 486 deaths, or 753 fewer than in 1897, when this disease prevailed epidemically. The death-rate was equal to 0·25 per 1,000 for the County, or 0·27 in the Urban and 0·11 in the Rural Districts, as compared with a County rate of 0·66 (Urban 0·70, and Rural 0·44) in the previous year. For the whole of England and Wales the death-rate from measles was 0·41, and in 33 of the large English towns 0·56. The monthly incidence was as follows:—

1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.
January... 55	April..... 63	July..... 39	October .. 11
February.. 46	May 19	August... 29	November 34
March..... 65	June..... 40	September 17	December 32
166	122	85	77

The rates of mortality from measles were exceptionally high in Aspull 1·56, Blackrod 1·28, Norden 1·25, Tyldesley 1·24, Crompton 1·21, Upholland 1·21, Mossley (B.) 1·14, Ashton-in-Makerfield 1·13, and Royton 1·08. Schools were closed in 33 districts on account of measles, and much advantage was derived from this recognised precautionary measure. In Crompton very few susceptible persons escaped the attack of measles, and Dr. Brooke (Medical Officer of Health) experienced the hopelessness of limiting the epidemic spread of measles among a concentrated population. Although not advancing any special measure of precaution to be adopted in case of measles, he is opposed to school closure, reporting that

in his district "the public schools were not closed by the Sanitary Authority, as no good amount of benefit could be expected from such a proceeding. So long as the average attendance does not suffer much, school managers are adverse to any interference by the Sanitary Authority, but when through absence of children it falls considerably, it is found best for the interests of the schools to close them for a time. This course has no very marked effect in staying an epidemic, and indeed, is generally adopted when the disease is on the wane."

Scarlet Fever was the cause of 5,035 cases of illness and 202 deaths, as compared with 6,064 cases and 286 deaths in 1897. The death-rate for the County, both in the Urban and Rural Districts, was 0·10, or 0·01 less than the rate for England and Wales, and 0·04 below the large English towns. It is satisfactory to observe, that there is a continuous decline in the severity of the symptoms of scarlet fever, as shown by the case mortality, which was 4·0 per cent., or 2·1 below the average of the preceding six years. The incidence of the disease is given in Table V., and it will be observed that the cases notified were most numerous during the fourth quarter, while in 1897 the maximum prevalence was attained in September, October, and November. The districts in which scarlet fever spread most markedly were Accrington (B.), 287 cases 11 deaths; Aspull, 103 cases 4 deaths; Chorley (B.), 112 cases 3 deaths; Clayton-le-Moors, 127 cases 11 deaths; Colne (B.), 522 cases 8 deaths; Haslingden (B.), 220 cases 4 deaths; Padilham, 197 cases 9 deaths; and Warrington (B.), 107 cases 11 deaths. With the exception of the last mentioned district it may be pointed out that hospital isolation was either practically impossible or not taken advantage of. Precautionary measures against the spread of scarlet fever, including school closure, were put in force in the various districts attacked throughout the County.

Whooping Cough had less prevalence and fewer deaths than any year previously recorded—only 363 deaths were ascribed to the disease, as compared with 520 in 1897, 672 in 1896, 678 in 1895, and 540 in 1894. The rate of mortality averaged 0·19 in the County, 0·20 in the Urban, and 0·10 in the Rural Districts. In England and Wales the rate was 0·31, and in 33 large English towns 0·42. As in the past two years the heaviest mortality took place in the second quarter, then the first quarter, and the fewest deaths occurred in the fourth quarter, instead of the third quarter, as in the preceding two years. The fatalities from whooping cough were most numerous in Ashton-in-Makerfield 17, Ashton-under-Lyne (B.) 17, Bacup (B.) 10, Colne (B.) 10, Hindley 14, Ince-in-Makerfield 12, Lancaster (B.) 13, Nelson (B.) 14, Pemberton 17, Swinton and Pendlebury 15, and Warrington (B.) 19. In the Lancaster Rural District schools were closed on account of the prevalence of whooping cough.

Diphtheria.—It is satisfactory to observe that the favourable death-rate from diphtheria recorded in 1897 has been continued. Of 766 cases of illness notified 150 proved fatal, the rate being equal to 0·07 in the County, 0·07 in the Urban, and 0·09 in the Rural Districts; the previous year's rate corresponded to 0·08, and the same in the Urban and Rural Districts. The diphtheria rate for England and Wales was 0·24, or three times more than the rate for the County, and in the large English towns it was 0·31. In Accrington (B.), with 38 cases and 7 deaths, the prevalence of the disease exceeded the average, and attacks were also numerous in Eccles (B.) and the adjacent districts of Irlam, Urnston, and Barton-upon-Irwell (R.). Ormskirk, however, takes the highest position with 34 cases and 11 deaths. In several districts, for instance, Eccles (B.), Lancaster (B.), Moss Side, Stretford, Burnley (R.), &c., the Authorities have made provision for bacteriological examinations in suspected cases of diphtheria. Dr. Crocker (Eccles B.) reports that in 22 instances no diphtheria bacilli

were discovered, and upon inquiry it was found that "the after course of these cases did not show any evidence of diphtheria"; and Dr. Mc.Naught, (Rawtenstall B.), also gives a favourable opinion of the test, and expresses a hope that now "when the medical men of the district have become familiar with the matter, all cases of suspected diphtheria will be at once submitted to the examination."

Membranous Croup.—For all practical purposes membranous croup does not differ from true diphtheria, and in future reports I shall group these two diseases together. The number of deaths ascribed to membranous croup was 143 against 148 in 1897, and 226 in 1896. The death-rate for the County corresponded to 0·07, or 0·05 less than the mean for the preceding 7 years. The deaths exceeded the average in Bacup (B.) 10, Colne (B.) 6, Darwen (B.) 6, Leigh 9, and Rawtenstall (B.) 11. In the last-named borough the deaths from membranous croup in 1897 were also somewhat marked.

Fever, including typhus, enteric or typhoid, and simple or ill-defined forms of continued fever occasioned 496 deaths, of which typhus was responsible for 2, continued fever 16, and typhoid fever 478. The rate for the County corresponded to 0·26, the same rate for the Urban Districts, and 0·25 for the Rural Districts. As compared with 1897 there was an excess of 132 deaths, equal to an increase in the death-rate of 0·07. The "fever" rate for the whole of England and Wales averaged 0·18 and 0·20 in the large English towns. There were 2,661 cases of illness notified against 2,074 in 1897 and 2,287 in 1896—the case mortality was equal to 17·8 per cent., as compared with 17·5 per cent. in 1897 and 19·1 per cent. in 1896. The incidence of the disease as shown by Table V. closely corresponded with 1897, the maximum severity being attained during the last four months of the year and the minimum during May, June, and July. The following districts had the greatest prevalence, viz., Ashton-under-Lyne (B.) 70 cases 14 deaths, Barton-upon-Irwell (R.) 51 cases 8 deaths, Farnworth

39 cases 12 deaths, Gorton 79 cases 14 deaths, Hindley 13 deaths, Ince-in-Makerfield 58 cases 14 deaths, Lancaster (B.) 87 cases 18 deaths, Leigh 133 cases 15 deaths, Tyldesley 73 cases 10 deaths, and Widnes (B.) 135 cases 21 deaths. Insanitary conditions usually productive of^a typhoid fever have again been at work in various County Districts, namely, privy middens and filth pollution of the soil, as mentioned in the reports received from Ashton-under-Lyne (B.), Aspull, Dalton-in-Furness, Denton, Eccles (B.), Farnworth, Haydock, Little Lever, Lytham, Radcliffe, Rainford, Fylde (R.), &c. The effect of impure water and accidental contamination of milk, with subsequent causation of typhoid fever, is spoken of by the Medical Officers of Health of Brierfield, Burnley (R.), Littleborough, and Oswaldtwistle (see summarised reports). The Medical Officers of Health of Leigh, Rishton, &c., refer to the danger of foul gases escaping from unventilated sewers, and giving rise to typhoid fever and ill-defined sickness. The proper ventilation of sewers is obviously a first necessity, and a system of sewer flushing at frequent intervals, especially in the hot dry months of the year, should be inaugurated in every district. In Leigh and Rawtenstall (B.) cases of typhoid fever were distinctly traceable to the removal from infected houses of nightsoil without previously subjecting it to disinfection. Many authorities, for example, Chadderton, Heaton Norris, Mossley (B.), Moss Side, Prestwich, Rawtenstall (B.), Royton, Stretford, &c., have taken advantage of the facilities offered by Prof. Delépine, at Owens College, for the application of Widal's "serum test." It is hoped that the medical profession will take more advantage of the bacteriological assistance provided gratuitously in these districts for early and correct diagnoses in cases of typhoid fever.

Diarrhœa gave rise to an excessive mortality, which, with the exception of 1893, was the highest recorded since 1889. The total deaths registered from this cause numbered 1,896,

as compared with 1,444 in 1897, and 891 in 1896. In consequence of diarrhœa being so dependent for its development on temperature, enormous variations are liable to occur year by year, as shown by the table below :—

	1898.	1897.	1896.	1895.	1894.	1893.	1892.	1891.
Administrative County	1·00	0·77	0·48	0·95	0·32	1·21	0·39	0·44
Urban Districts	1·06	0·80	0·52	1·04	0·35	1·30	0·43	0·47
Rural Districts	0·55	0·56	0·28	0·44	0·16	0·77	0·20	0·28
England and Wales . .	0·96	0·86	0·55	0·88	0·34	0·96	0·48	0·44
33 Large English Towns	1·22	1·24	0·79	1·19	0·50	1·22	0·71	*0·65
28 Large English Towns.								

The County rate, equal to 1·00—Urban 1·06, and in Rural Districts 0·55—does not compare favourably with the rate of 0·96 for the whole of England and Wales, although less than the rate given for the large English towns (1·22). The diarrhœa rates were markedly high in Gorton 4·5, Abram 3·36, Little Lever 3·15, Wigan (R.) 2·46, Leigh 2·37, Farnworth 2·28, Litherland 2·27, Eccles (B.) 2·25, Blackpool (B.) 2·22, Whitefield 2·21, Atherton 2·07, Warrington (B.) 2·02, Radcliffe 1·92, Hindley 1·76, Droylsden 1·71, Ashton-in-Makerfield 1·69, Reddish 1·60, and Middleton (B.) 1·52. The monthly incidence of diarrhœa, as given in Table V., varied from 11 in April to 841 in September, the maximum severity being experienced a month later than in the previous year. The conditions already referred to as inimical to infant life generally are those most productive of diarrhœa. Attempts are now being made in districts to secure, by means of disinfectants and water flushing, the cleanliness of the land surrounding houses ; careful attention must also be paid to the wholesomeness of the food, the cleanliness of the home,

and vessels containing food, if health and freedom from diarrhœa have to be maintained.

Influenza contributed 268 deaths against 337 in 1897; 140, 1896; 526, 1895; 213, 1894; 465, 1893; 551, 1892; 647, 1891; and 67 in 1890. The incidence of the disease was the same as in the previous year; the greatest severity being observed in the second quarter, and the least in the third quarter. The deaths exceeded the average in Accrington (B.) 14, Chorley (B.) 13, Eccles (B.) 10, Failsworth 10, Southport (B.) 13, Withington 17, and Whiston (R.) 10.

Respiratory Diseases, comprising bronchitis, pneumonia, and pleurisy caused 5,776 deaths, or 683 less than recorded in the previous year. The rate for the County corresponded to 3·05, Urban 3·13, and Rural Districts 2·47, while the rates for the previous year were 3·45 for the County, 3·57 in Urban, and 2·76 in the Rural Districts. The following districts had the highest death-rates from respiratory diseases, viz.:—Skelmersdale 7·05, Upholland 5·88, Ormskirk 5·14, Crompton 4·93, Hindley 4·85, Widnes (B.) 4·71, Wigan (R.) 4·40, Little Hulton 4·27, Bacup (B.) 4·17, and Audenshaw 4·16. The rate from heart disease was 1·23, or fractionally higher than the rate for 1897 (1·22), and below the average of the seven preceding years (1·24).

Phthisis was productive of 2,141 deaths, corresponding to a County rate of 1·13—Urban 1·14, and Rural Districts 1·01. It is satisfactory to observe that, owing to better sanitation, improved conditions of labour and other causes, a continuous decline has been taking place for some years in the phthisis rate of this County. In 1897 the rate was equal to 1·14, and for the preceding nine years it averaged 1·29. The rates were high in Heywood (B.) 2·33, Rainford 2·12, Longridge 2·0, Whitworth 1·87, Croston 1·82, Abram 1·78,

and Much Woolton 176. Medical Officers' reports show that phthisis has received much attention in many of the County Districts; its infectious nature is now recognised, and efforts have been made to allay the danger by disinfection, and isolation as far as possible of the patients suffering from the disease. Notification, either compulsory or in some other form, is demanded, and seeing that phthisis may be cured under suitable treatment, there is reason to believe that in the near future sanatoria for the treatment of this disease will have to be provided out of the public purse.

In the North London Hospital for Consumption the basis of treatment is rest in the open air, graduated exercise, and good feeding. No window in the open-air wards is ever closed, and during the cold weather the consumptive patients are kept warm with extra clothing and artificial heat. It is encouraging to note that practically *all the early* cases and 70 per cent. of all cases improve considerably under the open-air system. Of 183 cases of phthisis treated since January last, 43·7 per cent. left the hospital to return, in the majority of cases, to work; 32·3 per cent. distinctly improved, 7·6 slightly improved, 4·3 did not improve, and 3·9 died. It is not uncommon for patients to enter the hospital with extensive signs of the disease, and to leave after 9 or 10 weeks with no sign of acute disease, and an increase of a stone in weight. None of those who markedly improved and followed out the hygienic principles taught there have shown any signs of relapse.

As a means of reducing the mortality due to diarrhoea and tuberculosis, Dr. Parker (Lancaster) refers to the work initiated by Dr. Dufour at Fécamp, Normandy. This gentleman has formed a Society under the title of *La Goutte de Lait*, with the object of giving advice to mothers and encouraging them to rear their children by the breast, and where this is impossible, or only partly possible, to supply them with sterilized humanised milk in sterilized bottles.

During the four years working of the Society the mortality from all causes in children under one year in Fécamp was 243 per 1,000 births, while in children fed on sterilized milk it was 142 per 1,000, and the deaths from diarrhœa amounted to 32 per 1,000 births, against 115 for Fécamp. In addition, the children so fed show no signs of rickets, tuberculosis, &c. The Corporation of St. Helens have, on the advice of Dr. Drew Harris (Medical Officer of Health), decided to adopt this system, and, before long, practical experience of great value will be available.

In some of the districts within the County a small leaflet on *How to Prevent Consumption*, published by the National Association for the Prevention of Consumption and other forms of Tuberculosis, has been freely distributed. The following general precautionary measures suggested by the Society might certainly be adopted with advantage in every household desirous of healthy conditions:—

All rooms occupied by consumptive persons should be as free from damp and as well lighted and ventilated as possible. Fresh air, light, and sunshine are most important preventives of consumption. Over-crowding should be avoided.

No chimney should ever be blocked up, and windows should be kept open as much as possible.

Cleanliness and good sanitary surroundings are important both for the prevention and cure of consumption.

Rooms, passages, and staircases must be kept free from dust—where there is dust there is danger. Do not chase dust about or stir it up. Use damp dusters. Use plenty of tea leaves or damp sawdust for sweeping up the floor. Boil the dusters; burn the tea leaves and sawdust.

Milk, especially that used for children and invalids, should be boiled. Meat should be well cooked.

In the event of a death from consumption, the room occupied by the invalid should not be used again until it has been thoroughly cleansed; advice may be sought from the Local Sanitary Authority.

The Infectious Disease (Notification) Act is now operative in 124 districts—106 urban and 18 rural. No addition was made during the year to the County Districts already provided with the Act, although Kearsley and Bury (R.) passed resolutions in favour of notification being made compulsory from January 1st, 1899. The other districts without the benefits of the Act at the end of the year under review were Bacup (B.), Childwall, Hindley, Mossley (B.), Orrell, Skelmersdale, and Wardle. It is satisfactory to know that by an Act of Parliament passed in June, 1899, notification will, on the 1st day of January, 1900, become compulsory in every Urban, Rural, and Port Sanitary District of England and Wales. The action of those Authorities who so early as 1876 secured compulsory notification by local Acts of Parliament, has therefore met with ample justification notwithstanding the adverse criticism which at first was so freely aroused. Under Section 7 of the Act of 1889 diarrhoea became notifiable in Lancaster (B.) during July, August, and September; in Standish-with-Langtree the notification of measles came into operation on the 14th of July, and in Withington measles was removed from the list on the 19th of July. Measles was notifiable at the end of the year in the following districts, viz.:—Blackpool (B.), Droylsden, Lancaster (B.), Standish-with-Langtree, Stretford, Lancaster (R.), and Lunesdale (R.). By the notification of measles information can undoubtedly be obtained by the sanitary officials of the greatest value to them in effecting prompt home isolation of infected children, in closing schools, and in taking other well-known precautionary measures for checking the spread of the disease. In considering this question, however, it must be remembered that in a large proportion of cases of measles a doctor is either not

called in or only wanted when serious symptoms have commenced. Notification is therefore so long delayed as to be of little use or dependent on parents and not reliable. Much assistance is obtained without notification in many districts by the cordial co-operation of school authorities, and by the periodical medical examination of the scholars. When measles appears in a district, house-to-house visitations may be usefully carried out, and under such circumstances female inspectors can afford much assistance in the detection of disease, and in giving advice as to what should be done. Until Sanitary Authorities are prepared to incur the expense of hospital isolation, disinfection, and staff sufficient to deal with measles, I fail to see what special advantage notification of the disease possesses beyond the means already available. There were altogether 11,334 cases of infectious disease notified as compared with 15,263 in 1897 and 14,898 in 1896. Particulars as to the notifications of each disease are given in the following table:—

Diseases	1898.			1897.		
	Urban Sanitary District.	Rural Sanitary District.	Total.	Urban Sanitary District.	Rural Sanitary District.	Total.
Small-pox	5	1	6	2	1	3
Scarlet Fever.....	4373	662	5035	5080	984	6064
Diphtheria	666	100	766	542	91	633
Croup	149	9	158	146	16	162
Typhus Fever ...	3	2	5	13	...	13
Typhoid Fever ...	2325	336	2661	1684	267	1951
Continued Fever..	105	6	111	104	6	110
Puerperal Fever...	139	13	152	164	19	183
Erysipelas	1148	137	1285	1237	153	1390
Measles	772	42	814	4417	329	4746
Whooping Cough.	...	...	...	...	...	...
Chicken Pox .....	...	...	...	...	...	...
Rötheln	5	...	5	...	...	...
Relapsing Fever ..	2	10	12	3	1	4
English Cholera...	6	...	6	1	1	2
Diarrhœa	318	...	318	...	...	...
Not classified.....	...	...	...	2	...	2
Total	10016	1318	11334	13395	1868	15263

Isolation Hospitals.—Considerable progress has been made during the year towards providing hospital accommodation in the County (see Table A). The Chorley (U. and R.), Adlington and Leyland Joint Hospital has been structurally completed, although not sufficiently advanced for the reception of patients. It is satisfactory to observe that there is every prospect of the Isolation Hospital at High Carley, belonging to the Ulverston Board of Guardians, being soon taken over by a Joint Board representing Dalton-in-Furness and the Rural and Urban Districts of Ulverston. This combination I reported on favourably, April 20th, 1893, and the subsequent negotiations have been of a harmonious character. The Joint Board of Atherton, Leigh (U. and R.), and Tyldesley opened their Isolation Hospital at Astley in October, and the excellent accommodation provided has since proved of great use in the treatment of typhoid fever cases, which were somewhat numerous in the districts of Tyldesley and Leigh towards the latter part of the year. Little advance has been made by the Preston, Fulwood, and Longridge Joint Committee since purchasing a site in July, 1896. The Hospital Committee representing “The Fylde,” and “The Fylde, Preston, and Garstang” (small-pox) Joint Districts have provided sites, very suitable in character, and arrangements have been made for the preparation of plans. The Radcliffe, Ramsbottom, Whitefield, and Bury (R.) Joint Committee are engaged in the consideration of plans, and it is not likely that building operations will be long delayed. No further action has been taken by Walton-le-Dale Urban District Council in respect of hospital provision, although they entered into an undertaking (August 7th, 1895) to build an Isolation Hospital within 12 months. The Councils of Childwall, Kearsley, Lees, Worsley, &c., have considered the question of hospital accommodation, and it is likely that some arrangement will be come to for the joint use of hospitals belonging to neighbouring Authorities. The provision of a Joint Hospital for Blackrod, Horwich, and Westhoughton has also been discussed by the Authorities concerned. From the

table as under it will be seen how the County districts stand as to hospital accommodation; provision has been made during the year, in a more or less satisfactory manner, for an additional county area of 163,980 acres, having a population of 112,009, and most of the districts now without accommodation have had the matter under serious consideration.

	Boroughs.	Urban Sanitary Districts.	Rural Sanitary Districts.	Total.	Estimated Population	Acres (Census 1891).
Districts with Hospitals	9	20	5	34	722437	383570
Districts with Small-pox Hospitals only	5	8	2	15	272711	86091
Districts with Hospital Schemes in progress	1	14	5	20	241048	255883
Districts claiming the privilege of sending patients to Hospitals in other Districts	3	33	3	39	484166	111319
Districts without Hospital accommodation	1	20	4	25	164427	261406
Total	19	95	19	133	1884789	1098269

In the 34 districts provided with hospitals there were 4,466 cases notified and 1,010 or 22·6 per cent. received hospital isolation as compared with 20 per cent. in the previous year. The total number of scarlet fever cases notified in these districts amounted to 1,457, and 533, or 36·5 per cent., were removed to hospitals, against 37·6 per cent. in 1897. Of the scarlet fever patients, 24 died in hospitals, equal to a case mortality of 4·5 per cent., while 4·9 per cent. of the cases treated at home ended fatally. The greatest proportion of scarlet fever removals took place at Blackpool (B.) 90 per cent., Farnworth 89 per cent., Warrington (B.) 81 per cent., and Southport (B.) 66 per cent. In the 39 districts claiming joint use of hospital

TABLE (A).

HOSPITAL PROVISION IN VARIOUS DISTRICTS OF THE ADMINISTRATIVE COUNTY.

(PARTICULARS TAKEN FROM THE HEALTH REPORTS FOR THE YEAR 1898).

Districts with Hospitals.	Districts with Small-Pox Hospitals only.	Districts with Hospital Schemes in progress.	Districts claiming the Privilege of sending Patients to Hospitals as printed in parentheses.	Districts without Hospital Accommodation.
<p>URBAN.</p> <p>Ashton-in-Makerfield. Ashton-under-Lyne B. Birkdale. Blackpool B. Darwen B. *Fleetwood (Port) Garston Heywood B. Ince-in-Makerfield. Lancaster B. Morecambe. Ormskirk. Pemberton. Rainford (Cottage). *Skelmersdale. Southport B. Warrington B. Widnes B. Atherton. Leigh. } Joint. Tyldesley. } (Astley). Leigh R. } Farnworth. } Little Hulton. } Joint. Little Lever. } Adlington. } Chorley B. } § Joint. Leyland. } Chorley R. } Dalton-in-Furness. } § Joint. Ulverston. } Ulverston R. } Lathom and } Burscough. } Joint. West Lancashire R. } RURAL. Whiston.</p>	<p>URBAN.</p> <p>*Accrington B. Chadderton. } Crompton. } Joint. Royton. } *Haslingden B. *Hindley. *Mossley B. *Nelson B. *Oswaldtwistle. *Rawtenstall B. *Standish. † Walton-le-Dale (Cottage). *Whitworth (Cottage). RURAL. *Sefton. *Wigan (Cottage).</p>	<p>Brierfield. } Joint with Padiham. } Burnley County Burnley R. } Borough. Preston R. } Fulwood. } Joint for Longridge. } Infectious Garstang R. } Diseases. Fleetwood. } Kirkham. } Lytham. } Joint for St. Annes-on-the-Sea. } Infectious Fylde R. } Diseases. Colne B. } Radcliffe. } Joint for Infec- Ramsbottom. } tious Diseases Whitefield. } including Bury R. } Small-pox. Blackrod. } Horwich. } Joint. Westhoughton. }</p>	<p>URBAN.</p> <p>*Aspull (Wigan). Audenshaw (Hyde). *† Bacup B. (Sourhall, Todmorden). *Barrowford (Nelson). Castleton (Rochdale). Childwall (Liverpool). Denton (Hyde). Droylsden (Hyde). Eccles B. (Salford). Failsworth (Monsall). Golborne (Astley Joint). Gorton (Monsall). Great Crosby (Bootle). Haydock (St. Helens). Heaton Norris (Salford). *Hurst (Ashton-under-Lyne). Huyton-with-Roby (Whiston R.). Irlam (Salford). § Kearsley (Salford). Lees (Oldham). Levenshulme (Stockport and Hyde). Litherland (Bootle). *Little Woolton (Whiston R.). Middleton B. (Rochdale). Moss Side (Monsall). Much Woolton (Whiston R.). Newton-in-Makerfield (Warrington). Prescot (Whiston R.). Prestwich (Monsall). Stretford (Monsall). Swinton and Pendlebury (Children's Hospital, Pendlebury and Salford). Urmston (Salford). Waterloo-with-Seaforth (Bootle). Withington (Monsall). *Withnell (Blackburn). Worsley (Salford). RURAL. Barton-upon-Irwell (Salford). *Limehurst (Ashton-under-Lyne and Oldham). Warrington (Warrington B.).</p>	<p>URBAN.</p> <p>Abram. Allerton. Billinge. Carnforth. Church. Clayton-le-Moors. Clitheroe B. Croston. Grange. Great Harwood. Littleborough. Little Crosby. Milnrow. Norden. Orrell. Reddish. Rishton. Trawden. Turton. Upholland. Wardle. RURAL. Blackburn. Clitheroe. Lancaster. Lunesdale.</p>
(34)	(15)	(20)	(39)	(25)

* Not used during the year.

† Reserved for Small-Pox only.

‡ Used for 1 case of Typhoid Fever.

§ Schemes completed in 1899.

accommodation 3,122 cases were notified, and 17·6 per cent. were removed against 10·6 per cent. in 1897. From 8 districts not a single case received hospital isolation, and the removals from 12 districts averaged from 1 to 3 patients for each district.

Disinfection.—The additional districts provided with hospital accommodation during the year have also been supplied with disinfecting apparatus. Medical Officers of Health of the following districts have advised their Authorities to make this provision, viz.:—Accrington (B.), Clitheroe (B.), Hindley, Litherland, Mossley (B.), Orrell, Turton, Lanesdale (R.), &c. In Blackrod, Church, Castleton, Great Harwood, Heaton Norris, Kearsley, Newton-in-Makerfield, Norden, Rainford, Rishton, Skelmersdale, Standish-with-Langtree, Upholland, Wardle, Westhoughton, Whitworth, and the Rural Districts of Blackburn, Clitheroe, Garstang, Lancaster, &c., disinfecting appliances are either entirely wanting or of an extremely primitive character. Stretford and Waterloo-with-Seaforth have been provided with steam disinfectors, and 34 other districts have also similar apparatus available. With comparatively few exceptions, the local authorities in the County supply gratuitously disinfectants in case of infectious disease, and more attention than formerly is paid to the periodical cleansing and disinfection of schools.

Sanitary Administration. As in previous years the particulars given by Medical Officers of Health of sanitary work carried out in the various County Districts have been summarised. There is reason to believe that more attention has been directed to the details of sanitation during the past twelve months, and in support of this view it may be pointed out that a satisfactory reduction has taken place in the general death-rate, and in the rate of deaths from preventible diseases. With the additional duties sanitary officials are called upon from time to time to perform, Authorities should take care to provide for the

efficient supervision of their districts by the appointment of sufficient staffs. As mentioned in previous reports, the Sanitary Inspector, even for a large district, is often called upon to act as surveyor, rate collector, school attendance officer, and general factotum to his Authority. With an official so employed, it is usual to find that sanitary matters receive a very limited amount of attention.

House-to-house inspection has been carried out profitably in many districts, and resulted in the discovery and removal of conditions likely to prove injurious to health. In 18 of the County Districts houses unfit for human habitation have been condemned, and either pulled down, or made habitable. In Accrington (B.) the Corporation privately purchased a block of "slum" property for the purpose of demolition. Action was taken in Ashton-under-Lyne (B.) to make 25 single houses habitable, and insanitary dwellings were also condemned under the Housing of the Working Classes Act, at Hindley, Ince-in-Makerfield, Leigh, Leyland, Middleton (B.), Ormskirk, Oswaldtwistle, Prescott, Ramsbottom, Royton, Southport (B.), Standish-with-Langtree, Walton-le-Dale, Warrington (B.), Widnes (B.), Burnley (R.), Bury (R.), &c. Cellar dwellings were closed in Bacup (B.) and Chadderton.

The provisions of the Canal Boats Act have been put in force, and the following boat inspections are reported:—108 in Abram, 58 Chadderton, 99 Eccles (B.), 98 Ince-in-Makerfield, 58 Lathom and Burscough, 17 Littleborough, 38 Middleton (B.), 64 Radcliffe, 119 Warrington (B.), 66 Widnes (B.), 21 Lancaster (R.), 73 Preston (R.), 13 Warrington (R.), 67 West Lancashire (R.), &c. As a rule the boats were found in a satisfactory condition, but 33 infringements of the Act, mostly of a trivial nature, came under notice.

Slaughter-houses have been carefully inspected, and Medical Officers of Health refer to the difficulty of carrying out this work satisfactorily owing to the situation and character

of so many of these places. Dr. Anderson (Blackpool B.) states that certain butchers, in order to escape the system of inspection carried out at the abattoir, have erected more or less unsuitable slaughter-houses just outside the borough. To improve the efficiency of meat inspection, and do away with private slaughter-houses unfit for their special purpose, abattoirs have been recommended for the following districts, viz.:—Ashton-in-Makertfield, Ashton-under-Lyne (B.), Bacup (B.), Haslingden (B.), Heywood (B.), Leigh, Nelson (B.), and Warrington (B.). In the Borough of Colne an abattoir is in course of erection, and one is about to be provided at St. Amos-on-the-Sea.

The summarised reports contain references to the seizures of meat unfit for human food, and the prosecutions which resulted in many instances. Most of the reports state that bakehouses, factories, and workshops are under supervision, but the little information received concerning them seems to indicate that these duties are performed in a perfunctory manner.

Dairies, Cowsheds, and Milk-shops.—Owing to the recognition of the dangers which may arise from the consumption of milk obtained from diseased cows, or milk contaminated by the outside insanitary conditions not uncommonly found in the dairies and shippons of this County and already mentioned in referring to typhoid fever and phthisis, more attention has been paid to this department of sanitary work. It is also satisfactory to observe that during the year 27 additional districts have either adopted or commenced to enforce Regulations under the Order of the Local Government Board. There are now in the County 15 Boroughs, 62 Urban Districts and 13 Rural Districts provided with Regulations, but the remaining 43 districts have so far made no provision in this respect. The latter include large Authorities like Bacup (B.), Clitheroe (B.), Droylsden, Farnworth, Haslingden (B.), Kirkham, Lees, Ley-

land, Little Hulton, Little Lever, Orrell, Radcliffe, Rainford, St. Annes-on-the-Sea, Tyldesley, Walton-le-Dale, West-houghton, Whitefield, Worsley, and the Rural Districts of Chorley, Garstang, Lunesdale, West Lancashire, Whiston, and Wigan. The air space per cow required by Authorities varies from 400 cubic feet in Denton and Garston, 450 cubic feet in the Fylde (R.) and Litherland, 500 in Allerton, Kearsley, Milnrow, Pemberton, Turton, Waterloo-with-Seaforth, and Blackburn (R.), 600 in Aspull, Birkdale, Blackpool (B.), and Castleton, 700 in Fleetwood, to 800 in 23 Urban Districts and 4 Rural Districts, namely. Barton-on-Irwell, Preston, Sefton, and Warrington. Uniformity of supervision is not carried out, and Regulations, although adopted, are not always enforced. In order to secure efficient inspection of cowsheds, and purity of the milk supply in the Administrative County, greater power of control should be given to the County Council, or to a body equally independent of local circumstances and conditions. It has also been suggested that the time has come for the Local Government Board to introduce a bill into Parliament, compelling all Sanitary Authorities in England and Wales to make and efficiently carry out Regulations under Section 13 of the Dairies and Cowsheds Order, 1885, such Regulations to be on the lines of the recommendations of the last Royal Commission on tuberculosis.

Smoke Nuisance. —Although in 46 districts the nuisance arising from black smoke has received attention, as compared with 34 in the previous year, there has been a reduction of 279 in the number of observations taken. Few authorities seriously interfere with smoke production, and the appended table shows that the time limit per hour allowed by Gorton, 16 minutes, Darwen (B.) and Levenshulme, 15 minutes, Fleetwood, Garston, Heywood (B), &c., 10 minutes, indicate a more generous regard for smoke makers than for the unfortunate smoke inhalers. Numerous smoke observations continue to be taken at Ashton-under-Lyne (B.), but, as previously pointed out,

DISTRICTS.	No. of Smoke Observa- tions.	Time limit per hour Minutes.	No. of Legal Pro- ceedings.	REMARKS on action taken.
Ashton-under-Lyne (Boro).	480	8	..	
Atherton	5	..	..
Birkdale	1	..	..
Blackpool (Boro)	30	5	..	
Clmrch	Numerous	8	..	
Clayton-le-Moors	Several	..	..
Clitheroe (Boro)	Several	..	..	In one instance 16 min- utes black smoke emitted in one hour.
Darwen (Boro)	103	15	..	Orders obtained and Fines inflicted.
Eccles (Boro)	79	..	2	Fined 5 .. In 23 cases limit exceeded.
Failsworth	95	8	1	
Farnworth	21	..	..
Fleetwood	Daily.	10	..	
Fulwood	50	..	..
Garston	5	10	..	
Gorton	7	16	..	
Great Crosby ..	2	..	..
Great Harwood	16	..	..
Haslingden (Boro)	All chimneys 3 times during year.	10	..	All Millowners warned by letter.
Heywood (Boro)	7	10	..	
Horwich	16	..	1	Order obtained.
Lathom and Burscough ..	2	..	..
Leigh	24	5	..	
Levenshulme	20	15	..	
Littleborough	59	3	..	16 Notices served for exceeding time limit.
Middleton (Boro)	73	12	..	7 Notices served for exceeding time limit.
Milnrow	39	8	..	6 exceeded time limit.
Moss Side	52 weekly and 6 Special.	..	1	Defendant to pay costs.
Nelson (Boro)	2	..	..
Newton-in-Makerfield	Continuous	..	..	2 summoned to appear before Committee.
Norden	9	..	..	1 Notice served.
Pemberton	Frequent	..	..
Prestwich	24	5	..	
Radcliffe	124	..	..
Ramsbottom	11	12	..	
Rawtenstall (Boro)	37	..	..
Southport (Boro)	Several	..	..
Stretford	15	4	..	
Swinton and Pendlebury..	66	5	..	
Turton	2	..	..
Warrington (Boro)	135	6	..	93 offences. Health Committee levied
Waterloo-with-Seaforth ..	4	10	..	Fines amounting to £3 10s. 6d.
Worsley	2	..	..
Barton-upon-Irwell (Rural)	4	..	..
Bury (Rural)	14	..	2	
Fylde (Rural)	2	..	..
Sefton (Rural)	3	..	..
Total	1585	..	7	

legal proceedings do not appear to have been instituted against those who cause offence. With the exception of Warrington (B.), where vigorous action was taken under a local Act, only 7 prosecutions were undertaken by the County Authorities. In Middleton (B.) the average time smoke is emitted per hour, showed a slight decrease as compared with the previous year. The Medical Officer of Health (Dr. Graham) states that it is no kindness to the steam producer to allow black smoke to be emitted for 12 minutes in an hour ; it is a higher limit than adopted in other towns, and, without injury to trade, can readily be reduced by the adoption of well known methods to secure perfect combustion of the fuel. Believing that a continued prevalence of pollution of the atmosphere exercises a depreciating effect on the health of the inhabitants of densely populated districts, he urges his Council to co-operate with steam users for the protection of the public from the nuisance due to smoke.

Scavenging and Refuse Removal.—Information as to scavenging and disposal of refuse is given in the appended summarised reports. The local Medical Officers of Health state that in 106 districts the work is satisfactorily carried out, in 12 it is described as fairly satisfactory, and not satisfactory in 11 districts. In four reports no information is given under this heading. The Authorities undertake the work in 83 districts, as compared with 75 in the previous year : in 27 districts it is done by contract, and in 9 the responsibility is partly with the householders and partly with the officers of the Authority. In 14 districts, including the following, there is no proper system of public scavenging, viz. : Irlam, Rainford, and the Rural Districts of Blackburn, Chorley, Clitheroe, part of Lancaster, Lanesdale, and Ulverston, and the householders are, in consequence, put to great expense and inconvenience in securing the removal of the nightsoil and house refuse. With improved sewerage there is an increasing desire on the part of many Authorities to substitute water-closets for the poisonous

privy-midden, but efforts in this direction have been curtailed owing to the want of legal power to enforce such conversions.

In consequence of the prevalence of typhoid fever in Ellesmere Street, Eccles (B.), the Corporation tried to abolish certain "foul and defective privy pits," under the Nuisance Section of the Public Health Act. The decisions of the Courts of Summary Jurisdiction and Quarter Sessions in favour of the Corporation were reversed before the Court of Appeal at Queen's Bench (Lord Chief Justice and Mr. Justice Wills). Dr. Crocker, Medical Officer of Health, seems to think that "as the law stands at present in many towns like Eccles the Sanitary Authorities, while aware of the serious risks connected with these 'relics of barbarism,' are powerless to alter them, except at their own expense, and then only with the consent of the owner and at the risk of the expenditure being declared *ultra vires*. The whole expense of such alterations, if done by the local Authority, must, it would seem, come out of the current rates, as there is no power to borrow for such a purpose."

The difficulties in securing suitable places for the deposit of refuse have induced several Authorities, as for instance Accrington (B.), Colne (B.), Darwen (B.), Morecambe, and Stretford to provide refuse destructors; and the Medical Officers of Health of Pailsworth, Fleetwood, Garston, Gorton, Great Crosby, Heywood (B.), Hindley, Nelson (B.), and St. Annson-the-Sea also advert to the desirability of getting rid of domestic refuse in this manner.

Drainage and Sewage Disposal.—There has been a considerable extension of drainage operations and provision for sewage disposal in the various County districts. The following table shows that in the two watershed areas 6 new outfall works have been put into use as compared with 1897. There are now 2 works in progress and 3 schemes under consideration:—

Authorities with	Mersey and Irwell Watershed.		Ribble Watershed.	
	1898.	1897.	1898.	1897.
Works in operation	57	51	39	38
Works being constructed	5	11	1	2
Schemes sanctioned	1	1	...	...
Schemes submitted to the L.G.B.	1	1	...	...
Schemes under consideration	1	1	2	1
Schemes inefficient ... ..	...	...	...	...
No scheme ... ..	...	...	...	1
Total...	65	65	42	42

During the year the joint sewage works of Bacup, Haslingden, and Rawtenstall, and of Leigh and Atherton, have been completed, and the sewage plant of the Urban District of Denton has commenced operation as far as the tanks are concerned. Extensions of the following outfall works have been under consideration, viz.: Accrington and Church, Adlington, Colne (B.), Farnworth, Hindley, Nelson (B.), Radcliffe, Royton, Swinton and Pendlebury, Westhoughton, &c. There has been much progress made in the construction of works at Abram, Ashton-under-Lyne (B.) and Ramshotbottom, and the Local Government Board have sanctioned schemes for Croston, Morecambe, Withnell, and Limehurst (R.) (Waterloo and Bardsley). Reference to the summaries of health reports will show that satisfactory progress has been made in respect of drainage and sewage disposal works in the Rural Districts of Blackburn (Wilpshire, Livesey, Pleasington, Eccleshill and Mellor Brook), Burnley (Read, Simonstone, Hapton and Altham), Chorley (Coppull), Clitheroe (Wiswell), Preston (Middleforth Green and Farington), West Lancashire (South and North Anghton), &c. The drainage of several townships in the Rural Districts of Burnley, Garstang, Limesdale,

Sefton, Ulverston, Warrington, Whiston, and Wigan is described by the local Medical Officers of Health as very unsatisfactory.

The advantage of sewer flushing is becoming more generally acknowledged, and the smoke test has been applied in several districts. Flushing operations are mentioned in the reports received from Allerton, Atherton, Birkdale, Fleetwood, Great Crosby, Ormskirk, Widnes (B.), &c. The smoke test was applied with success in Eccles (B.), Great Crosby, Ince-in-Makerfield, Morecambe, Stretford, Waterloo-with-Seaforth, &c. Attention has been paid to the ventilation of the sewers in many districts, but much remains to be done in this direction to remove the danger of sewer gas forcing an entrance into dwelling-houses. In two instances typhoid fever was—as previously mentioned—supposed to have originated in this way.

Water Supply.—The filtration beds in course of construction at Dean Clough for the Accrington Joint Authorities will soon be completed, and it is hoped that they will improve the character of the water—now much complained of—which is supplied to Accrington (B.), Church, Clayton-le-Moors, and Great Harwood. By a recent Act of Parliament, Bacup (B.) has obtained an increased gathering area, and has been placed in a position to supply more effectually some of the higher parts of the borough. The Authorities supplied with Bury water still complain of the water being unfit for drinking purposes—*vide* summarised reports of Little Lever, Prestwich, Radcliffe, Ramsbottom, Rawtenstall (B.), &c. Dr. Harrison, Haslingden (B.), complains that certain houses in the borough “are frequently for more than six months at a stretch entirely without water.” The water supplied to the following districts is reported as unfiltered, or imperfectly filtered, viz:—Adlington, Failsworth (from Oldham), Fleetwood and St. Annes-on-the-Sea (from the Fylde Waterworks Co.), Heaton Norris,

Oswaldtwistle, &c. Extensions of water supply have been made in the rural districts of Preston (Penwortham and Longton), Ulverston (Much and Little Urswick, Backbarrow, Hawkshead, &c.), West Lancashire (Tarleton, Hesketh, and Bickerstaffe), and Whiston; but in the rest of the rural districts more attention ought to be paid to this important sanitary requirement.

It ought to be borne in mind that in Rural districts the Local Government Act, 1894, by Section 16, provides that where danger arises to the health of the inhabitants from the insufficiency or unwholesomeness of the existing supply of water and a proper supply can be got at a reasonable cost, "the Parish Council may complain to the County Council, and the County Council if satisfied, after due inquiry, that the District Council has so failed as respects the subject matter of the complaint may resolve that the duties and powers of the District Council for the purpose of the matter complained of shall be transferred to the County Council." This Section also enables Parish Councils to take similar action in respect of defective sewerage or failure on the part of Rural District Councils to put in force the provisions of the Public Health Acts.

Sale of Food and Drugs Act.—Dr. Campbell Brown, the Public Analyst for the Administrative County, has submitted the following Report on the proceedings taken under the Sale of Food and Drugs Act :—

"During the year under review 1,495 samples have been analysed, including 1,249 purchased by Superintendents of Police, 139 samples of butter and margarine by the Inspector for the Agricultural Society, and 107 by Inspectors for District Councils and private purchasers. Of these, 158 were found to be offences, or 10·56 per cent. They are classified as follows :—

487	Samples of Milk	... ..	of which 13 were offences.
348	„ Butter	... ..	88 „
10	„ Bread	... ..	0 „
43	„ Coffee, Tea, and Cocoa	... ..	4 „
154	„ Small Groceries	„	6 „
318	„ Spirits	... ..	13 „
3	„ Confectionery	„	0 „
15	„ Drugs	... ..	2 „
117	„ Miscellaneous	„	2 „

Total 1495 of which 158 were offences.

“ The percentage of offences is no indication of the relative prevalency of adulteration in the County, because the Inspector for the Royal Lancashire Agricultural Society has purchased a smaller number of samples this year. More than half of his samples are certified to be offences, and almost the whole of those certified resulted in convictions. A still larger number of his samples are probably not genuine, but some are not sufficiently certain to be certified for judicial purposes. It should be mentioned that this Inspector has acquired a very remarkable degree of skill in selecting mixed butter. Many of the cases which he has discovered and followed up are such as no analyst would have been able to condemn with certainty some years ago, and these would be passed by as genuine butter by any ordinary inspector.

“ The smaller number of samples purchased by him may very likely be due to the greater difficulty in finding the more cunningly prepared mixtures.

“ A tabular statement of the proceedings in each Division is appended. The number of prosecutions reported is 132, namely, 54 by the Police, 76 by the Agricultural Inspector, and 2 by local Inspectors. Of these 132 cases 123 were convicted. One summons was not served.

“The penalties varied from 1s. to £20. The average penalty was only £1 16s. 3d., although there were seven cases amounting to a total of £110. The average of the remaining cases, excluding these seven, was only 19s. 6d. Long observation has convinced me that fines under £5 rarely have a repressive effect.

“I would point out a defect in the present law. The mixing of a small quantity of butter with margarine, or a large quantity of margarine with butter, can be justified on the ground that it renders the margarine more pleasant and palatable; but the mixing of a large quantity of butter with margarine, that is a small quantity of margarine and butter, is indefensible on any honest plea. It can only be intended to be sold as butter, and is necessarily fraudulent. The importation as well as the sale of butter containing 10 or 20 per cent. of margarine should be absolutely prohibited, and should not be passed even if labelled margarine. Retail customers are told that it is only so labelled to make the vendor ‘safe,’ but that the label does not mean anything; or the label is altogether removed in the retail shop.”

TABLE SHEWING THE PROCEEDINGS IN EACH POLICE DIVISION AND BY OTHERS.—1896.

Divisions.	Total Samples.	No. of Prosecutions.	Con-victions.	RESULT OF PROSECUTIONS.	Penalties.	Costs.	Remarks.
					£ s. d.	£ s. d.	
N.L.D.	58	3	3	One fined 20s., two fined 10s. and costs	2 0 0	4 17 1	
S.L.D.	55	0	0				
G.D.	40	3	3	One fined 20s., one 10s., one 5s. and costs	1 15 0	2 2 0	
Km. D.	82	5	5	One fined 40s., one 20s., one 5s. and costs, two fined costs only	3 5 0	2 14 8	
L.B.D.	36	2	2	One fined 10s., one 1s. and costs	0 11 0	1 6 4	
H.B.D.	40	0	0				
Rs. D.	98	2	2	One fined £5, one £1 and costs	6 0 0	6 1 11	
Ac. D.	30	1	0	Dismissed			
L.D.	130	6	6	Two fined 40s., one 20s., two 10s. 6d. and costs, one fined costs only	6 1 0	2 12 9	
Bn. D.	56	0	0				
By. D.	75	3	2	One fined 10s. and costs, one costs only, one case pending ...	0 10 0	1 9 4	
R.D.	59	5	5	Two fined 21s., one 10s., one 5s. and costs	3 2 0	2 0 0	
A.D.	72	5	5	One fined 5s. 6d. and costs, four fined costs only	0 5 6	3 13 7	
M.D.	154	9	9	Two fined £10, one 10s., three 5s., one 1s. and costs, two costs only	21 6 0	10 18 9	
Bo. D.	58	7	6	Three fined 10s., two 5s. and costs, one fined certificate fee, and one dismissed	2 0 0	3 6 0	
O.D.	24	1	1	Fined costs only ... ..	.....	0 15 10	
P.D.	62	3	1	One fined £5 and costs, two dismissed... ..	5 0 0	0 8 0	
Ws. D.	59	2	2	Two fined 20s. and costs... ..	2 0 0	2 3 6	
W.D.	69	1	1	Fined 40s. and costs	2 0 0	0 10 2	
Wgn. D.	51	5	5	One fined £20, two 20s., two 10s. and costs	23 0 0	4 16 10	
Insp. Agri. Socy...	1308 345	63 122	58 96	Fined sums varying from 1s. to £5, and in some cases costs, 12 were dismissed, 14 remained to be decided in January, 1897	78 15 6 78 18 0	49 16 9 30 8 0	
Insp. of District Councils & private purchasers	1653 102	185 0	154 0				
Total for year ...	1755	185	154		157 13 6	80 4 9	



SUMMARY OF THE REPORTS
RECEIVED FROM
MEDICAL OFFICERS OF HEALTH
OF
URBAN AND RURAL SANITARY AUTHORITIES
FOR THE YEAR 1898.

URBAN SANITARY DISTRICTS.

Abram.—(Area in acres, 1,982; Estimated Population, 5,054).—*Medical Officer of Health*, NATHAN HANNAH, L.R.C.P.E.; *Salary*, £25. — Birth-rate 47·0, death-rate 25·3, zymotic rate 5·14, death-rate from phthisis 1·78, and from respiratory diseases 3·75 per 1,000 of population; rate of deaths under one year to 1,000 births 247.

The birth and death rates show an excess of 1·0 and 5·3 per 1,000 respectively as compared with the previous year, and the zymotic rate—chiefly owing to deaths from diarrhoea—rose from 2·02 in 1897 to 5·14. The phthisis rate was less favourable, but the respiratory rate shewed a reduction of 3·54. The infantile death-rate, which was high last year, has gone still higher, and is much to be deplored. Scarlet fever gave rise to 37 cases and 4 deaths, typhoid fever contributed 5 cases and 1 death, measles 4 deaths, and diarrhoea—which was very prevalent in the months of August and September—17 deaths. The provision of an Isolation Hospital and disinfecting apparatus has been under consideration, but so far no definite action has been decided upon.

Sewerage, Scavenging, &c.—A portion of the sewage of this district was formerly treated at Ashton-in-Makerfield, but the agreement has expired, and outfall works for the whole district are now in course of construction. Filters have been put down, but have not given satisfaction, and the Mersey and Irwell Joint Committee, in February, instituted legal proceedings. Scavenging is reported as “being fairly up to the mark,” but there are still a large number of open privy middens.

Sanitary Inspection.—Periodical inspection of the district has taken place, and a number of nuisances arising from slop-pipes and gullies have been attended to. Bakehouses (5), slaughter-houses (3), and workshops (3) have received close attention, and 108 canal boats have been examined. It is satisfactory to note that the dairies and cowsheds are very much improved. The Inspector (Mr. Eatock) reports the service of 33 notices, affecting nuisances at 71 houses.

Accrington Borough.—(Area in acres, 3,425; Estimated Population, 43,105).—*Medical Officer of Health*, T. J. MONAGHAN, M.D., D.P.H.; *Salary*, £80.—Birth-rate 23·9, death-rate 15·3, zymotic rate 2·29, death-rate from phthisis 0·67, and from respiratory diseases 2·66 per 1,000 of population; rate of deaths under one year to 1,000 births 201.

The general death-rate compares favourably with the preceding year, and with the exception of 1894 is the lowest recorded for 20 years. The phthisis and respiratory rates are more satisfactory than in 1897, but the zymotic and infant rates show an increase, and are above the average. Dr. Monaghan, in reporting on the high infant mortality, refers to the effect of mill work and its influence on the mother and offspring, and also to a very common cause of infant ailments, viz., improper feeding. The zymotic rate was chiefly accounted for by the deaths from measles (30), and diarrhœa (30). The former disease prevailed throughout the year, and between May and August it necessitated the closure of several schools; the Medical Officer of Health has again to draw attention to the fact that parents do not recognise the serious nature of measles, and do not show any great desire to separate the sick from the healthy, and to keep them separated until convalescence has taken place. Scarlet fever gave rise to 287 cases and 11 deaths, and the borough was not free from this disease during any portion of the year; typhoid fever was responsible for 52 cases and 13 deaths, diphtheria 38 cases, 7

deaths, whooping cough 8 deaths, membranous croup and erysipelas 3 deaths each, and puerperal fever 2 deaths. Hospital accommodation is much needed, as at present the sanitary officials are helpless in procuring isolation for infectious cases, except small-pox. Dry heat disinfecting apparatus continues to be used, but a steam disinfecter is recommended.

Water Supply.—Complaints have been made from time to time as to the quality of the water, but when the filtration works at Dean Clough are completed, the cause of complaint will no doubt be removed.

Sewerage, Scavenging, &c.—The sewerage of the borough, with the exception of the Baxenden district, is reported as "satisfactory," and during the year 1 mile 5 furlongs of sewers has been constructed. The Chief Inspector of the Ribble Joint Committee reports that the filters and tanks are now in operation, but the character of the effluent leads him to the conclusion "that the filter area is not sufficiently large." Experiments have been made with a "thermal aerobic" filter, but sufficient time has not elapsed to judge of its efficiency. The Local Government Board has been applied to for borrowing powers to sewer the Baxenden Valley portion of the district. The Authority undertake the scavenging, and dispose of the refuse by "tipping"; a destructor is, however, in course of construction.

Sanitary Inspection.—During the year a thorough house-to-house inspection has taken place. 1,787 premises were examined, and details are given of a large number of sanitary defects discovered. The Corporation have purchased a block of "slum" property for the purpose of demolition. The common lodging-houses in the borough do not give entire satisfaction, but they are "tolerated lest the inmates should become lodgers in private houses, and thus escape supervision." A fair amount of work has been done to improve the sanitary arrangements of bakehouses, factories and workshops, and

premises where noxious trades are carried on. Three hundred and forty visits were made to the public and private slaughter-houses. Dairies, cowsheds, and milk-shops are kept in a cleanly state, and several shippens have been re-built with increased cubic capacity. Attention is drawn to the nuisance caused by the turning of waste steam and hot water from factory boilers into the sewers. Fifty-eight midden privies have been altered to "waste-water" closets, and 116 pail closets converted to the water system. Under the Sale of Foods and Drugs Act 19 samples were taken; in one case the institution of legal proceedings resulted in a fine and costs. The premises of ice cream vendors are under supervision, but until separate buildings are made compulsory for making and storing ice cream, there is a liability of contamination. The Inspector served 927 notices relating to 1,271 nuisances.

Adlington.—(Area in acres, 1,012; Estimated Population, 4,800).—*Medical Officer of Health*, ALFRED E. MOLE, M.B.; *Salary*, £20.—Birth-rate 27·7, death-rate 12·0, zymotic rate 1·45, death-rate from phthisis 0·20, and from respiratory diseases, 2·70 per 1,000 of population; rate of deaths under one year to 1,000 births 120.

The general death-rate, the zymotic, respiratory, and infant rates, although higher than last year, are still below the average of urban districts within the County. The zymotic deaths, 7 in number, were attributable to diarrhœa 4, typhoid fever 2, and continued fever 1. Very few cases of infectious disease were notified, but in October and November a severe outbreak of mumps occurred which necessitated the closing of the National and Independent Schools. Dr. Mole recommends the Council to place mumps and measles on the list of notifiable diseases. The Joint Isolation Hospital is in course of erection.

Water Supply is good, and a distinct improvement has taken place during the year, but the Authority is urged to filter the water before distribution.

Sewerage, Scavenging, &c.—The Local Government Board have sanctioned borrowing powers for certain improvements at the outfall works. The scavenging is said to be satisfactorily carried out by contractors, the refuse being used on land. The privy midden system is still in existence, and “while this remains it is bound to be a source of danger to the health of the inhabitants.”

Sanitary Inspection.—Regulations have been adopted under the Dairies and Cowsheds Order. Bakehouses and slaughter-houses are kept in good sanitary condition, and the factories and workshops in the district are satisfactory. The Inspector has had occasion to serve 18 notices and write 20 letters to secure the abatement of nuisances.

Allerton.—(Area in acres, 1,585; Estimated Population, 1,050).—*Medical Officer of Health*, JOHN A. FISHER, L.R.C.P.E.; *Salary*, £20.—Birth-rate 22·8, death-rate 7·6, zymotic rate 1·90, death-rate from phthisis nil, and from respiratory diseases 0·95 per 1,000 of population: rate of deaths under one year to 1,000 births 83.

The statistics presented by Dr. Fisher are again satisfactory. The zymotic rate (1·90) was due to 2 deaths of infants from diarrhœa. The phthisis rate was nil, and only 1 death took place from bronchitis. In October 2 cases of typhoid fever were notified, one being imported from outside the County.

Sewerage, Scavenging, &c.—The sewers, which are flushed once a week in summer and every fortnight in winter, discharge their contents into the River Mersey. The scavenging is performed by the Council's workmen with good results.

Sanitary Inspection.—The district has been systematically inspected by the Medical Officer of Health and Surveyor, and nuisances due to the keeping of pigs in close proximity to

dwellings, dilapidated ashpits, &c., have been remedied. The milk-shops, cowsheds, &c., are kept in good order, and bakehouses and workshops are satisfactorily conducted. Eight notices were served to abate nuisances; in one case legal proceedings ensued.

Ashton-in-Makerfield.—(Area in acres, 6,250; Estimated Population, 15,883).—*Medical Officer of Health*, NATHAN HANNAH, L.R.C.P.E.; *Salary*, £60.—Birth-rate 43·7, death-rate 19·2, zymotic rate 4·65, death-rate from phthisis 0·75, and from respiratory diseases 3·14 per 1,000 of population; rate of deaths under one year to 1,000 births 192.

The birth-rate continues high while the general death-rate (19·2) bears favourable comparison with the mean (20·3) for the decade 1888-97. The deaths from zymotic diseases gave an exceptionally high rate (4·65) due to the fatalities from measles 18, whooping cough 16, and diarrhœa 27. Attention is also called to the large number of children under the age of twelve months who succumbed to diseases described as "wasting" 50, "convulsive" 9, "tubercular" 8, and "gastro intestinal" 12. No deaths took place from puerperal fever, and Dr. Hannah is of opinion that mid-wives pay greater attention to cleanliness and generally are more "alive to their responsibilities." In June and September measles appeared in several schools, and action was taken to secure the exemption of children in anyway likely to spread infection, total closure, however, was not advised. The Fever Hospital was occupied throughout the year, and altogether 50 cases, viz., 37 suffering from scarlet fever and 13 from typhoid, were treated. Increased accommodation is called for with slight improvements in the existing arrangements. The provision of disinfecting apparatus is also under consideration.

Water Supply has been much improved, and now the quality of the water is reported as satisfactory and "every care is exercised in preserving the gathering area."

Sewerage, Scavenging, &c.—The Medical Officer of Health states that the Garswood sewage “instead of finding its way into the stream is treated in bacteria beds as is also that from Downall Green;” previously this sewage was treated at Low Bank by irrigation. The Brynn Gate section, on the international plan, continues satisfactory, and every care is taken to secure a good effluent on the farm.” A large amount of crude sewage, equal to a daily flow of say 50,000 gallons, passes directly into Mellingford Brook on the east side of Heath Lane Bridge causing a serious pollution in contravention of the Rivers Pollution Act, 1876. More careful scavenging might be inaugurated in respect of courts and “yard areas common to numbers of tenants and the public.”

Sanitary Inspection.—Much attention has been paid to insanitary property, and mention is made of Heath Lane, Copper House Row, Stanley Mill, &c., where improvements have been carried out. A public slaughter-house is urgently needed owing to the limited and unsatisfactory accommodation for slaughtering in the district. The question of overcrowding is being considered, and efforts are now made to secure the conversion of the privy middens so extensively met with. The Inspector reports the abatement of 467 nuisances and fumigation of 134 rooms. Five insanitary houses were pulled down voluntarily by the owners on the recommendation of the department. Dairies and cowsheds are periodically inspected and attention has been directed to bakehouses and workshops.

Ashton-under-Lyne Borough.—(Area in acres, 1,396; Estimated Population, 41,700).—*Medical Officer of Health*, W. H. Hughes, M.R.C.S.; *Salary*, £130. Birth-rate 26·5, death-rate 19·1, zymotic rate 1·76, death-rate from phthisis 1·34, and from respiratory diseases 3·62 per 1,000 of population; rate of deaths under one year to 1,000 births 194.

The Borough boundary has been slightly extended. Eleven acres, with a population of 62, were transferred from Dukinfield, and in exchange 6 acres, with a population of 45, were

taken from this district into Dukinfield. Dr. Hughes reports a low birth-rate, and a death-rate 3·1 less than the average for the previous seven years. The zymotic rate was 1·76, as compared with 3·35 in 1897, and the deaths from phthisis and respiratory diseases were also satisfactorily reduced. Ten deaths took place from measles, scarlet fever, and diphtheria, but whooping cough shows an extensive prevalence with 17 deaths. Typhoid fever caused 14 deaths and diarrhœa 42, and to reduce these diseases the Medical Officer of Health says: "Remove your source of pollution, the wet, foul ashpits, and concrete or flag the yards and passages, increase the yard space to each cottage, and thus admit more air and light." The Fever Hospital, provided with 16 beds, was used for the treatment of 22 cases, viz., 20 typhoid fever and 2 continued fever. The whole of the 92 cases of scarlet fever notified were treated at home.

Water Supply reported as "good."

Sewerage, Scavenging, &c.—The construction of intercepting sewers is approaching completion, but much delay has been experienced in the provision of the joint outfall works. A list is given of a large number of streets that have been paved, flagged, and sewered. The work of scavenging is said to be satisfactorily carried out by the Corporation.

Sanitary Inspection.—In the opening of Crickets Lane "a great deal of the old property on the south side has been purchased and pulled down, and the admission of light and air into a dark and closely confined district will be found to be a great advantage to those living in the neighbourhood." Private slaughter-houses have been improved, but a public abattoir is much needed. Attention has been paid to the sale of milk, and it is satisfactory to note that no new licenses to sell milk are granted unless a room is specially set apart for its sale and storage. Monthly reports are made *re* smoke observations, but little good will result until further

action is taken in case of nuisance. The single houses in Stansfield's Yard, Albion Court, Charles Street, Hill Street West, Church Street, and Park Street, have, to the number of 25, been found unfit for habitation, and most of them have either been converted into double houses or pulled down. From the summary of sanitary work carried out by the Inspectors it appears that altogether 17,868 visits were made—house-to-house inspections 2,567, waste-water closets inspected 14,578, notices served 526, letters written *re* nuisances 135, smoke observations taken 480, and nuisances abated 1,260.

Aspull.—(Area in acres, 1,905; Population (Census 1891, 8,952).—*Medical Officer of Health*, L. COOKE, L.R.C.P.; *Salary*, £25.—Birth-rate 32·5, death-rate 18·8, zymotic rate 3·79, death-rate from phthisis 1·22, and from respiratory diseases 3·68 per 1,000 of population; rate of deaths under one year to 1,000 births 154.

The death-rate was slightly in excess of that for the preceding year, and the birth-rate fell from 34·4 to 32·5. It is satisfactory to note a reduction in the rate of mortality of children under the age of twelve months. The zymotic rate (3·79) was high, and chiefly accounted for by the large number (14) of fatalities from measles. Typhoid fever (with 7 deaths) and diarrhoea (with 6) also exceeded the average of the previous five years. The Medical Officer of Health reports that "nearly all the fatal typhoids were traced to some defect in the sanitary arrangements in and about the dwellings—either the back-yards were filthy, or the drainage bad, or ashpits wet." In February measles occurred extensively at New Springs, and again in October at Lane Ends; in both instances schools were closed with good effect. Although the hospital accommodation is described as good, no advantage was taken of it, notwithstanding the occurrence of 103 notified cases of scarlet fever.

Water Supply reported as good and abundant.

Sewerage, Scavenging, &c.—The system of sewerage has been completed, and the sewers are connected with the Wigan Corporation Sewage Farm. Many privy middens have been converted during the past year, and it is suggested that water carriage be generally introduced. Scavenging is carried out by contract in a satisfactory manner.

Sanitary Inspection.—Dr. Cooke is of opinion that considerable progress has been made in the sanitary condition of the district, but it has been necessary, in order to enforce the decrees of the Council, “to prosecute the owners in ten cases of insanitary property.” Bakehouses, slaughter-houses, and lodging-houses are described as well-conducted. The Inspector served 261 notices to abate nuisances, 85 houses were fumigated and cleansed, 5 cases of overcrowding remedied, and frequent inspections of the district have been made by the sanitary officials.

Astley Bridge.—(Area in acres, 1,768; Estimated Population, 7,000).—*Medical Officer of Health*, ROBERT SETTLE, M.D.; *Salary*, £20.—Birth-rate 21·8, death-rate 12·7, zymotic rate 1·28, death-rate from phthisis 1·28, and from respiratory diseases 2·0 per 1,000 of population; rate of deaths under one year to 1,000 births 130.

Dr. Settle submits a Report which covers a period of nine months ending with September 29th—the date of the district’s incorporation with the County Borough of Bolton. A favourable death-rate, corresponding to 12·7 per 1,000, was accompanied by a low birth-rate, 21·8. The zymotic deaths were ascribed 1 to scarlet fever, 2 to enteric fever, and 4 to diarrhoea. The deaths of infants under one year to 1,000 births rose from 71 in 1897 to 130. During May and June scarlet fever of a mild type was somewhat prevalent, and 8 cases were removed to the Borough Hospital.

Sanitary Inspection.—The carcasses of two cows were condemned and destroyed in consequence of extensive tubercular disease. Slaughter-houses have been carefully supervised, and the sanitary welfare of the district has received every attention.

Atherton.—(Area in acres. 2,269; Estimated Population, 15,880).—*Medical Officer of Health*, JAMES T. NEECH, L.R.C.P.E., D.P.H.; *Salary*, £50.—Birth-rate 36·9, death-rate 17·6, zymotic rate 3·14, death-rate from phthisis 0·94, and from respiratory diseases 3·77 per 1,000 of population; rate of deaths under one year to 1,000 births 197.

The birth-rate was slightly higher than in the previous year, although below the average of the past six years. The general death-rate was 2·6 less than in 1897, and there was a slight diminution in the infant rate. The zymotic rate was kept up by the excessive number of deaths—33—from diarrhœa. Scarlet fever gave rise to 29 cases notified and 1 death. Diphtheria and membranous croup caused 5 deaths, typhoid fever 4, measles 5, and whooping cough 7. In consequence of the prevalence of measles at Hindsford, St. James's School was closed. In October the Joint Isolation Hospital was opened at Astley, and proved useful for the treatment of 12 cases of scarlet fever and 3 of typhoid fever which were removed from this district. During the year 46 houses were fumigated with sulphur and 31 beds and mattresses passed through the disinfecting apparatus.

Water Supply continues good and sufficient.

Sewerage, Scavenging, &c.—The sewers have been frequently inspected, and any defects found made good. Offensive smells from manholes have been obviated by the provision of acidulated peat filters. Flushing has also been carried out in dry weather, and the water used for this purpose amounted to 496,500 gallons. The sewage is now treated on

the farm of the Leigh and Atherton Joint Sewerage Board completed in July. The street scavenging, carried out by the Authority, is said to be fairly satisfactory, and the ashpit refuse is removed without serious complaint. The slop-water closets, although not so good as the ordinary water closets, have on the whole given satisfaction.

Sanitary Inspection.—A distinct improvement has been effected in many of the dairies, cowsheds, and milk-shops; complaints, however, have had to be made in a few instances as to the want of attention paid to cleanliness. Slaughter-houses and bakehouses have been fairly well conducted, and the same remark applies to the one common lodging-house in the district. The Inspector reported 69 nuisances, of which 33 were abated without the necessity of serving a notice, 26 after notice was served, and 10 remained unabated at the end of the year. “The above nuisances consisted of open and offensive ashpits, blocked drains, short slopstone pipes, dirty back yards, insanitary hen houses, pigeon cotes, and manure receptacles.” Twenty-seven notices were served to linewash houses, and in each case the work was carried out.

Audenshaw.—(Area in acres, 1,165; Estimated Population, 7,447).—*Medical Officer of Health*, WILLIAM J. ALKIN, L.R.C.P.E.; *Salary*, £20 (no claim).—Birth-rate 27·5, death-rate 14·5, zymotic rate 0·40, death-rate from phthisis 1·20, and from respiratory diseases 4·16 per 1,000 of population; rate of deaths under one year to 1,000 births 117.

The vital statistics compare favourably with the previous year; the death-rate was fractionally lower, and the deaths of infants under one year to births was reduced 50 per 1,000. The zymotic deaths, 3 in number—due 1 to typhoid fever and 2 to diarrhoea—gave a low rate, but the deaths from phthisis and respiratory diseases were above the average; scarlet fever occasioned 24 cases but no deaths; hospital isolation was provided for 3 patients.

Sewerage, Scavenging, &c.—The sewage continues to be treated at the Joint Works of Dukinfield and Stalybridge, and a small portion from the western side of the district is taken into the Manchester sewers. The scavenging is reported as satisfactory.

Sanitary Inspection.—Slaughter-houses, dairies, and cow-sheds are periodically inspected; there are no lodging-houses or bakehouses. Nuisances to the number of 68 have been abated, but no particulars are given.

Bacup Borough —(Area in acres, 6,400; Estimated Population, 24,400).—*Medical Officer of Health*, JOHN BROWN, M.D., D.P.H.; *Salary* £80 (no claim).—Birth-rate 24·1, death-rate 17·2, zymotic rate 0·98, death-rate from phthisis 1·02, and from respiratory diseases 4·17 per 1,000 of population; rate of deaths under one year to 1,000 births 122.

The birth-rate although low showed an increase of 1·1 per 1,000 as compared with the previous year. The general death-rate was favourable and the same may be said of the zymotic and infantile death-rates. Scarlet fever and measles gave rise to only 1 death each, while whooping cough occasioned 10 deaths; in reference to the latter disease the Medical Officer of Health reports that “in some cases children were sent to day schools who had the characteristic ‘whoop’ and mixed with others in the infant classes, many of whom were susceptible to the disease.” The disease spread in this way, but apparently no action was taken to close the infected schools. Diphtheria caused two deaths, and attention may be called to the excessive fatalities—10 in number—from membranous croup. Typhoid fever and diarrhoea were responsible for 5 deaths each. It is difficult to understand why Bacup should continue to hold a unique position respecting notification in face of the annual complaint of the Medical Officer of Health as to the difficulties experienced in preventing the spread of infectious diseases in the borough. Provision has

been made for the reception of patients suffering from small-pox at Sourhall (Todmorden), but there is no accommodation for the treatment of ordinary infectious diseases. A steam disinfecter is also wanted.

Water Supply.—By a recent Act of Parliament the Corporation is given power to increase their water supply and to make provision for the distribution of water to certain houses situated at a higher altitude than the present reservoirs. "Some of the private water supplies are liable to surface pollution, and also fail in time of drought."

Sewerage, Scavenging, &c.—The whole of the sewage is now treated at the joint outfall works at Ewood Bridge. The scavenging is said to be satisfactorily carried out by the Corporation. In order to encourage property owners to substitute slop-water closets for the pail and midden the Public Health Committee has decided to provide all the labour employed in the conversions *free of cost*.

Sanitary Inspection.—Slaughter-houses are kept in a fairly good condition, but a public abattoir is much needed. The Chief Constable reports that the dairies, farms, and common lodging-houses have received the usual attention. Bakehouses and cellar dwellings are periodically visited. Very little improvement is said to have taken place in the amount of black smoke poured forth from the mill chimneys. The Inspector caused to be remedied 49 defective drains and 76 defective closets, of the latter 56 were converted to the pail system and 9 to waste-water closets.

Barrowford.—(Area in acres, 1,368; Estimated Population, 5,700).—*Medical Officer of Health*, F. E. DE BEEHO PIM, L.R.C.P.I.; *Salary*, £20.—Birth-rate 24·7, death-rate 15·4, zymotic rate 2·45, death-rate from phthisis 0·87, and from respiratory diseases 3·50 per 1,000 of population; rate of deaths under one year to 1,000 births 177.

As compared with 1897, there was a reduction in the birth-rate equal to 3 per 1,000, and an increase of 1·4 in the

general death-rate. The zymotic and infantile rates were also considerably increased. Scarlet fever had an extensive prevalence during the year, and gave rise to 96 cases, of which 7 ended fatally. Diphtheria and membranous croup contributed 5 deaths, and 1 death occurred from each of the following causes: measles, whooping cough, and diarrhoea. In consequence of the prevalence of measles and scarlet fever the Medical Officer of Health advised the closure of the day and Sunday schools from the 2nd to the 19th of September. Unfortunately the managers of the Sunday schools did not give the help asked for, and as a result the disease spread, and many lives were, in all probability, sacrificed. If the Nelson Corporation take infectious cases, as stated in the Report, why was not advantage taken of the accommodation when epidemic disease prevailed so extensively?

Water Supply obtained from the Nelson Corporation.

Sewerage, Scavenging, &c.—From the commencement of the year the sewage has been treated in precipitation tanks, and afterwards by irrigation. The work of coupling up house drains to the sewers has received attention. The scavenging is performed by the officials of the Authority in a more satisfactory manner.

Sanitary Inspection.—Very little information is given with respect to the practical carrying out of sanitation, and in future reports more particulars will be required. It may be mentioned that in my Summary for 1897 reference is made to the paucity of sanitary details.

Billinge.—(Area in acres, 4,591; Estimated Population, 1,200).
—*Medical Officer of Health*, RICHARD O. MATHER, L.R.C.P.E.;
Salary, £30. —Birth-rate 31·6, death-rate 18·8, zymotic rate nil, death-rate from phthisis 1·19, and from respiratory diseases 3·09 per 1,000 of population; rate of deaths under one year to 1,000 births 112.

The vital statistics show a great improvement as compared with the previous year; the general death-rate was

reduced 4·9, and the respiratory and infant rates were equally satisfactory. Only 8 cases of scarlet fever and 8 of typhoid fever came to the knowledge of the sanitary officials, and all recovered, in fact, there was not a single death from zymotic disease registered during the year. The prevalence of typhoid fever at Billinge Higher End has been ascribed to inefficient ventilation of the sewers, and improvements have been effected in this direction. A building has been secured for temporary use in case of an epidemic; there are no disinfecting appliances.

Water Supply is said to be “constant, plentiful, and uniformly good.”

Sewerage, Scavenging, &c.—Sewage is dealt with on land, and the effluent when examined was reported as good. The scavenging is satisfactorily performed by the Authority.

Sanitary Inspection.—House-to-house inspections have been made in parts of the district such as Weavers' Court, Roby Well, and Gorsey Brow. “The bulk of this property is very difficult to keep in a sanitary condition, and unless more attention is paid to the sanitary requirements, proceedings against the respective owners for their closure will be advocated.” The cowsheds are in most cases overcrowded and imperfectly ventilated. Slaughter-houses are occasionally visited, and carcasses inspected. Bakehouses continue cleanly and well conducted; there are no lodging-houses. The Inspector served 26 notices for the abatement of nuisances, and much work was done on his verbal recommendation.

Birkdale.—(Area in acres, 2,214; Estimated Population, 15,000).—*Medical Officer of Health*, A. V. WHEELER, L.R.C.P.E.; Salary, £75 (no claim).—Birth-rate 22·2, death-rate 12·6, zymotic rate 0·4, death-rate from phthisis 1·0, and from respiratory diseases 1·6 per 1,000 of population; rate of deaths under one year to 1,000 births 141.

The health conditions of this district continue favourable, the general death-rate was low—2·5 per 1,000 less than last

year—and the zymotic and respiratory rates were equally satisfactory. The infant rate has been reduced, but there is room for further improvement. Scarlet fever gave rise to 37 cases of illness, and all recovered, 19 after treatment at the Isolation Hospital. The other zymotic deaths were attributable to typhoid fever (1), whooping cough (1), and diarrhoea (1). Efforts are being made to secure a site for a new Isolation Hospital.

Water Supply is satisfactory.

Sewerage, Scavenging, &c.—The sewage is treated in tanks on the International system. The sewers have been extended and additional ventilating shafts provided. "Great attention is being paid throughout the district to the cleansing of the sewers." Automatic flushing tanks are recommended by the Medical Officer of Health. The scavenging has been carefully carried out by the Sanitary Authority.

Sanitary Inspection.—Slaughter-houses, dairies, and cow-sheds are periodically inspected, and reported as cleanly and free from objection. The Inspector served 42 notices and secured the abatement of 182 nuisances of a miscellaneous character, including defective drains, offensive privies and ashpits, defects in connection with downspouts, soil pipes, waste pipes, rain water cisterns, &c. Articles of clothing and bedding from 35 infected dwellings were disinfected and the rooms fumigated. In no case had legal action to be taken.

Blackpool Borough.—Area in acres, 3,495; Estimated Population, 45,411).—*Medical Officer of Health*, A. J. ANDERSON, M.B., D.P.H.; *Salary*, £400.—Birth-rate 27·7, gross death-rate 16·99, death-rate among residents 13·8, zymotic rate 2·46, death-rate from phthisis 0·99, and from respiratory diseases 2·53 per 1,000 of population; rate of deaths under one year to 1,000 births 163.

The population is estimated at 45,414, against 40,234 in the previous year, the increase being equal to 5,180. The

birth-rate is given as 27·74, against 26·25 last year and 23·91 for the quinquennium 1891-95. The gross death-rate was 16·99, and the rate corrected for age and sex distribution, to render it comparable with the Registrar-General's rates for other districts, was 15·63. The death-rates from all causes were the highest in Talbot Ward and lowest in Waterloo Ward. The rate of deaths under one year to births (163) compare favourably with the previous year. The proportion of deaths of illegitimate children during the first year of life was unusually high. The zymotic rate per 1,000 inhabitants, namely, 2·99 (or 2·46 by excluding the deaths of visitors), must be regarded as high and in excess of the average of previous years. The chief contributors to the zymotic rate were typhoid fever (with 16 deaths) and diarrhœa (with 101 deaths, or 49 more than recorded in 1897). Scarlet fever was the cause of "77 cases, with 5 deaths, or a case mortality of 6·5 per cent., and a death-rate of 0·110. The cases and deaths were less than in any year since 1892, except 1894, when there were 76 cases and 4 deaths, but the death-rate that year was 0·132." Particulars are given of certain imported cases. Measles had great prevalence during March and April, and more especially in December, when 124 cases, out of a total 418 for the year, were notified. Seven deaths took place, giving a case mortality of 2·7 per cent. It was found necessary to adopt school closure in a few instances. The deaths from the other zymotic diseases were due—3 to diphtheria, 2 to membranous croup ("which would doubtless be deaths from diphtheria"), and 2 to whooping cough. The Isolation Hospital did good work, and was used for the treatment of 148 cases, viz., 70 scarlet fever, 38 enteric fever, 4 diphtheria, 28 measles, 1 puerperal fever; other diseases from outside, &c., 7. The Medical Officer of Health states that "in all instances the mortality in hospital is less, particularly so in the case of measles and scarlet fever. With enteric fever and diphtheria there is a selection of cases, that is to say, that an undue proportion of severe cases are sent into hospital."

Water Supply, excellent in quality, is obtained from the Fylde Waterworks Company. Want of pressure in the North Shore district has been the subject of complaint, but a new main is being laid which no doubt will remedy this defect.

Severage, Scavenging, &c.—The drainage scheme for the south of the borough is nearly completed, and pumping operations have been commenced. It is also proposed to carry the sewer outlet well below the extreme low-water mark. In various parts of the borough houses drain into cesspools most imperfectly constructed, and it is hoped that the Corporation will soon be in a position to abolish them. The scavenging is efficiently carried out, most of the refuse (21,313 loads) being carted to the destructor.

Sanitary Inspection.—Great attention is paid to the inspection of house drains. Of 1,388 occupied houses, the drains of 361 were found satisfactory. Of “1,027 houses in which some defect or other was found, 506 were made sanitary during the year.” The drains of 1,174 new houses were also tested. In order to avoid dampness of the ground or basement floors of houses, it is strongly urged that the building bye-law with respect to cementing, asphaltting, &c., of house sites should be enforced. The public slaughter-house is satisfactorily conducted, but it is reported that certain butchers, in order to escape inspection, have erected more or less unsuitable slaughter-houses just outside the borough. The bakehouses, common lodging-houses, dairies, and cowsheds are said to be in a fair condition. Under the Sale of Food and Drugs Act, the following samples were analysed :—“Coffee (6), butter (16), lard (2), and new milk (22). In a case of milk adulteration, the defendant was fined £4 and costs. Mr. Macdonald, the Inspector of Nuisances, gives details of a large amount of sanitary work carried out, necessitating the service of 205 notices from the Council, 838 preliminary notices, 93 verbal notices, and 158 letters. Inquiries were made as to 332 cases of infectious disease, 247 houses received disinfection, and a

total of 7,121 articles were passed through the steam disinfecter.

Blackrod.—(Area in acres, 2,388; Estimated Population, 3,900).—*Medical Officer of Health*, H. SMITH, M.R.C.S.; *Salary*, £20.—Birth-rate 31·0, death-rate 15·1, zymotic rate 3·58, death-rate from phthisis nil, and from respiratory diseases 1·79 per 1,000 of population; rate of deaths under one year to 1,000 births 190.

* The death-rate although below the average is hardly so favourable as that recorded last year, chiefly owing to the increase in the zymotic rate, which is 3·58 against 2·43 in the previous year. No death took place from phthisis, but there was a slight increase in the respiratory rate, and the proportion of deaths of infants under the age of one year to births rose from 100 in 1897 to 190. Dr. Smith attributes the increased mortality in infants to “early marriages, premature births, imperfect nursing, infantile diarrhœa, and the doubtful supply of healthy milk from not very satisfactory dairies.” Measles broke out in the localities of Scot Lane and Manchester Road in October, and became epidemic throughout the district, necessitating closure of the schools; five cases complicated with pneumonia proved fatal. Diarrhœa was the cause of 6 deaths, and diphtheria, croup, typhoid fever, and whooping cough one each. Under the Infectious Disease Notification Act 19 cases were reported, scarlet fever in a mild form being responsible for 7 attacks. The district is still unprovided with hospital accommodation and disinfecting apparatus.

Water Supply continues good in quality and abundant for all purposes.

Sewerage, Scavenging, &c.—The sewage works appear to give satisfaction; the land (80 acres) used as a sewage farm has always, as far as could be seen, been successful in completely absorbing the sewage without any effluent resulting.

The arrangement made by the Council for the more efficient removal of house refuse has resulted in an improvement on the old system of contract.

Sanitary Inspection.—The officials have frequently inspected the district, and a considerable advance in the construction of ashpits has been made. The slaughter-houses are satisfactory; and at present there are no bakehouses or lodging-houses in use. It is to be regretted that dairies and cowsheds are not subject to inspection; the Medical Officer of Health urges the Council to adopt Regulations under the Order of the Local Government Board without further delay, and also to procure samples of milk for analysis. Notices to abate nuisances were served in 54 instances, and all were complied with.

Brierfield.—(Area in acres, 1,000; Estimated Population, 8,000).—*Medical Officer of Health*, THOMAS DEAN, M.D.; *Salary*, £20 (no claim).—Birth-rate 28·1, death-rate 14·1, zymotic rate 2·0, death-rate from phthisis 1·12, and from respiratory diseases 2·62 per 1,000 of population; rate of deaths under one year to 1,000 births 200.

This is the only Report received from Brierfield since the year 1891. The death-rate was below the average, and showed a reduction of 2 per 1,000 as compared with the previous year; the proportion of infant deaths to births, however, was very high, viz., 200 per 1,000. During the first half of the year a large number of children were attacked by measles, and scarlet fever also during the same period gave rise to much sickness. From the latter disease 61 cases were reported, but fortunately the type was mild and no death occurred. The schools were thoroughly inspected, and the school authorities assisted materially in preventing the spread of the infection. Typhoid fever was responsible for 11 cases, and one death took place of a patient removed to hospital

outside the district. The cause of the outbreak was peculiar and interesting. A farmer who resided a mile and a half from Brierfield took the disease in consequence of impure water used at the farm; by some means the milk from the cattle became infected with the fever germs, and as most of the milk was sold in this district, 12 persons who partook of it became ill. The cause of the outbreak was quickly discovered, and the farmer destroyed the milk, and there was no further spread of the disease. The Medical Officer of Health made a special report on the occurrence, and the Council's officials adopted precautionary measures which were successful in limiting the fever to those who first partook of the milk. The joint Isolation Hospital is nearly completed.

Water Supply is described as "good."

Sewerage, Scavenging, &c.—The sewage works are in operation and the new filter has been got to work, but owing to the filter area being too limited the Chief Inspector of the Ribble Joint Committee has had to report that the "effluent from the tanks and filters continues to be of a polluting character," and notice has been given that unless such steps are taken as may be necessary to deal efficiently with the sewage, proceedings will be taken. Scavenging is satisfactorily performed by the Authority.

Sanitary Inspection.—During the year the ashpits of 30 houses have been converted from the tank system into w.c.'s, and the sanitary arrangements of some of the old property has been much improved. Bakehouses are in good condition, and one slaughter-house has been erected and one condemned. The Council have passed resolutions adopting the Contagious Diseases (Animals) Act, 1881, and the Dairies, Cowsheds, and Milk-shops Order of 1885, and have submitted draft Bye-laws to the Local Government Board for approval. Nuisances numbering 119 were abated consequent on the service of 64 notices. No legal proceedings were required.

Carnforth.—(Area in acres, 1,459; Estimated Population, 2,850).—*Medical Officer of Health*, EDWARD S. JACKSON, M.B.; *Salary*, £20.—Birth-rate 27·3, death-rate 8·4, zymotic rate nil, death-rate from phthisis 0·35, and from respiratory diseases 1·40 per 1,000 of population; rate of deaths under one year to 1,000 births 76.

The health of this district continues very favourable. As compared with 1897 the general death-rate shows a reduction of 2·6 per 1,000. The zymotic rate was nil, and the phthisis, respiratory, and infant rates also show a satisfactory diminution. Of the zymotic diseases notifiable in this district only one case of erysipelas was notified.

Sewerage, Scavenging, &c.—The sewage flows into a tidal stream after passing through settling tanks. During the year 1,012 yards of sewers were laid. Scavenging is satisfactorily performed by contract.

Sanitary Inspection.—Bakehouses and slaughter-houses are said to be well conducted, but unfortunately dairies and cowsheds are not periodically inspected. The Medical Officer of Health again calls the attention of the Council to the fact that no Bye-laws have yet been framed under the Dairies, Cowsheds, and Milk-shops Order. Fifty-seven notices, relating to 81 nuisances, were issued, 48 have been complied with and the remainder are receiving attention.

Castleton.—(Area in acres, 2,399; Estimated Population, 7,700).—*Medical Officer of Health*, W. H. SHARPLES, M.R.C.S., D.P.H.; *Salary*, £30.—Birth-rate 23·2, death-rate 10·7, zymotic rate 1·03, death-rate from phthisis 0·9, and from respiratory diseases 2·2 per 1,000 of population; rate of deaths under one year to 1,000 births 134.

The general death-rate, which last year was the “lowest rate recorded since the formation of a sanitary authority for

this district," again showed a reduction, and the zymotic rate was also more favourable. The phthisis, respiratory, and infant rates although below the average were slightly in excess of those recorded in the previous twelve months. During the first four months of the year 6 cases of scarlet fever were notified, two of which were removed to Marland Hospital; the district was entirely free from this disease for the remainder of the period under report. Typhoid fever gave rise to 5 cases, all of these received treatment in the Isolation Hospital. Diarrhœa—very prevalent in the autumn—was responsible for 6 deaths, and diphtheria and whooping cough each caused one death. Apparatus for the disinfection of bedding, clothing, &c., is wanted.

Sewerage, Scavenging, &c.—An additional five acres of land adjoining the present sewage works has been purchased to cope with the increasing volume of sewage. The Trub Brook is polluted by the unconnected sewage of the Marland and Buersil portions of the district, and also by the effluent from certain dye-works and tanneries. The Council are, however, taking steps to abate the pollution, and the contract has been let for the coupling up of the unconnected districts. Scavenging is undertaken partly by the Authority and partly by contract, and is said to be satisfactory.

Sanitary Inspection.—Inspection of the district has been systematically carried out and the Inspector reports that the general public are beginning to take an active interest in sanitary matters. Dairies, cowsheds, and milk-shops are subject to Regulation and reported as being in "fair" condition. There are no public bakehouses or lodging-houses, but the district contains two slaughter-houses which are well conducted. Canal boats (36) were inspected and found satisfactory, and 10 houses were disinfected after infectious disease. A nuisance from premises where an offensive trade is carried on was abated after notice, and 48 other nuisances necessitated the service of formal notices.

Chadderton. — Area in acres, 3,080; Estimated Population, 25,500). — *Medical Officer of Health*, HAROLD ASHTON, L.R.C.P.; *Salary*, £65.—Birth-rate 26·9, death-rate 17·2, zymotic rate 2·27, death-rate from phthisis 0·94, and from respiratory diseases 3·68 per 1,000 of population: rate of deaths under one year to 1,000 births 180.

The statistics presented by Dr. Ashton compare favourably with those of the previous year. The birth-rate is fractionally higher, and the death-rate shows a reduction of 1·1 per 1,000. The deaths from zymotic diseases produced a rate of 2·27, against 2·28 last year, and the phthisis, respiratory, and infant rates show slight reductions. The number of cases of infectious disease notified again declined, being 69 against 89 in the previous year, and 200 in 1896. Scarlet fever was responsible for 34 cases and 3 deaths, and in February it was considered advisable to close the Wesleyan Board School at Middleton Junction for a period of three weeks on account of the prevalence of this disease and measles amongst the scholars. Typhoid fever gave rise to 27 cases, mostly in old property, and 5 terminated fatally; seven of the patients were removed to the Isolation Hospital, where one died. Arrangements were made last year with Professor Delépine, of Owens College, for the bacteriological diagnosis of doubtful cases of typhoid fever and diphtheria. This has been taken advantage of in a number of cases, and has proved a useful addition to the means of coping with these two diseases. Small-pox gave no trouble, but a man from this district removed into the adjoining County Borough and was next day found to be suffering from the disease. The house he had vacated was thoroughly disinfected, and no further spread occurred. Increased facilities are now available for good and efficient vaccination, and Dr. Ashton hopes that this will lead to a considerable increase in the number of vaccinations. There was a rather widespread epidemic of measles in February and March, affecting principally North Ward. The

schools in North Ward, and the one previously mentioned, were closed till the epidemic subsided. Summer diarrhœa caused, as usual, a large number of deaths (29), and whooping cough was responsible for 7 fatalities. In August a number of cases of food poisoning occurred from partaking of veal pies, 36 or more persons being attacked, and 3 terminated fatally. A full enquiry was made into the matter and a special report prepared. A Joint Hospital is provided for the isolation of small-pox, but no proper hospital provision has been made for ordinary infectious cases.

Water Supply is obtained chiefly from the waterworks of the Oldham Corporation.

Sewerage, Scavenging, &c.—The new sewage works at Slack's Valley for the treatment of sewage by the International system was opened on September 17th. The Chief Inspector of the Mersey and Irwell Joint Committee has, however, had to complain of the slow progress made by the Authority in connecting up the sewers to the outfall works. Scavenging is performed by the Council's men, and gives satisfaction, with the exception of the removal of nightsoil in the daytime.

Sanitary Inspection.—A house-to-house visitation was made and resulted in many sanitary improvements, and in the closure of four houses which were certified to be unfit for human habitation. Five cellar dwellings were also closed for the same reason. Dairies, cowsheds, and milk-shops are periodically inspected; the cowsheds are mostly old ones, and in some cases the cubic space is insufficient. The Regulations require 800 cubic feet of air space per cow, but so far this provision has not been enforced. The bakehouses and slaughter-houses are in good condition, and the 58 canal boats examined gave satisfaction. The Inspector issued 131 notices for the abatement of nuisances, and the majority of them received attention without resort to legal proceedings. No smoke observations were taken.

Childwall.—Area in acres, 786; Estimated Population, 212).
 —*Medical Officer of Health*, HENRY HARVEY, M.B.; *Salary*, £20. —Birth-rate 14.1, death-rate nil, zymotic rate nil, death-rate from phthisis nil, and from respiratory diseases nil per 1,000 of population; rate of deaths under one year to 1,000 births nil.

The health of this small district has again been very good. Not a single death took place during the year, and only one case of infectious disease, viz., scarlet fever, came to the knowledge of the sanitary officials. The Council has recently adopted the Infectious Disease (Notification) Act, and also has communicated with the Liverpool Corporation as to the terms on which cases of infectious disease may be admitted into one of the City Fever Hospitals.

Water Supply derived from the Liverpool mains is constant and excellent.

Sanitary Inspection, &c.—No complaints have been made as to the drainage which is chiefly turned into cesspools situated in the open fields, and the scavenging has been satisfactorily carried out by the Authority. The only dairy farm in the township is kept in a cleanly and fairly sanitary condition, but the amount of cubic space per cow is much too low. There are no bakehouses or lodging-houses, and only one slaughter-house, which is very seldom used. One notice was served for the abatement of a nuisance.

Chorley Borough.—(Area in acres, 3,614; Estimated Population, 26,300).—*Medical Officer of Health*, JAS. A. HARRIS, M.D. (Lond.); *Salary*, £60 (no claim). —Birth-rate 30.3, death-rate 18.4, zymotic rate 1.25, death-rate from phthisis 1.02, and from respiratory diseases 2.20 per 1,000 of population; rate of deaths under one year to 1,000 births 161.

As compared with 1897 there was a slight increase in the birth-rate, and a decrease in the death-rate equal to 2.5; the

zymotic rate was 1·25 against 2·26, and the proportion of deaths under one year to 1,000 births fell from 217 to 164. Scarlet fever caused 112 cases and 3 deaths, and was most prevalent in the months of March, June, August, and September. The disease was of a very mild type, and spread owing to the want of hospital isolation. Typhoid fever gave rise to a large number of cases (63) and 11 deaths. Diphtheria and membranous croup contributed 5 deaths, and diarrhœa 18. The erection of the Joint Infectious Hospital is proceeding rapidly, all the wards are built, and the administrative blocks will soon be completed.

Sewerage, Scavenging, &c.—The outfall works at Common Bank have efficiently dealt with the sewage — “an experiment is being tried with three filter beds filled with magnetite, and several other improvements have been made during the year.” The scavenging is well carried out by the Corporation. In accordance with a Provisional Order 657 closets have been converted from the pail to the water-carriage system. These alterations have been effected chiefly in West Ward, and to a less extent in North Ward.

Sanitary Inspection.—The slaughter-houses are frequently visited; of 79 carcasses examined it was found necessary to condemn 8 cows, 26 pigs, 3 sheep, 1 calf, and 1 goat. The weight of the carcasses ordered to be destroyed was 7,100 pounds, an amount far above the average condemned in other districts of this county. Bakehouses (26) are described as good, public slaughter-house (1) very good, and lodging-houses (14) generally good. The Inspector reports that 1,255 sanitary defects, and 137 infected houses, received attention. Legal proceedings were taken in the following cases:—

Insanitary manure receptacles...	Order to comply with notice
Stoppage of drains	... .. To carry out order and costs
Filthy house and yard, 2 cases...	Orders and costs

Breach of common lodging-house bye-laws	... ..	...Fined 7s. 6d. and costs
Moving pigs without license, 2 cases	... ..	...Fined 10s. 6d. and costs
Removing a person whilst suffer- ing from scarlet fever...	... ..	...Fined 5s. and costs

Under the Sale of Food and Drugs Act 13 samples were purchased for analysis, viz., milk 28, butter 6, lard 1, drugs 3, and spirits 5. In 3 milk adulterations fines to the extent of 15s. and costs were inflicted, and 40s. and costs in a case of whisky having an excess of 7 per cent. of water.

Church.—(Area in acres, 528; Estimated Population, 6,600).
—*Medical Officer of Health*, HY. WORSLEY, M.B.: *Salary*, £20.—Birth-rate 26·8, death-rate 14·6, zymotic rate 2·57, death-rate from phthisis 0·15, and from respiratory diseases 3·03 per 1,000 of population; rate of deaths under one year to 1,000 births 135.

As compared with 1897 the birth and death rates show a reduction of 2·5 and 3·2 per 1,000 respectively, but the zymotic rate slightly increased. The phthisis, respiratory, and infant rates are more favourable than those recorded last year. Thirty-four notifications of infectious disease were received, of which scarlet fever contributed 17 cases and typhoid fever 13. The zymotic fatalities numbered 17, viz., typhoid fever 6, continued fever 1, whooping cough, 1, and diarrhoea 9. There is no Isolation Hospital for the district, but again it was found necessary to use a house for the purpose of isolating a fever case. The Medical Officer of Health desires the Council to take into consideration the urgency of immediately preparing for future use a real Isolation Hospital, as “these temporary and sudden arrangements for isolating cases are generally unsatisfactory and often dangerous to the surrounding population.”

Water Supply.—A large number of complaints have again been received respecting the quality, and for a time the quantity, of water supplied; it was “often very bad and quite unfit for potable purposes.” It is a duty incumbent upon the Council to expedite the completion of the filters which are in preparation. The gathering grounds are, to a considerable extent, well manured, which is not at all satisfactory, but it is pleasing to note that the Water Board have taken over one of the farms bordering on the reservoir at Dean Clough, and it is hoped that this will eventually be followed by the whole watershed coming under their control.

Sewerage, Scavenging, &c.—The joint sewage works at Coppy Clough have not met with the approval of the Local Government Board or of the Ribble Watershed Joint Committee. A proposal has been made to purchase more land for filtration, and several of the tanks have been improved. Scavenging is performed satisfactorily by the Authority, the refuse being tipped on waste land.

Sanitary Inspection.—The Medical Officer of Health draws attention to the necessity of closing Woods Row, as it is in a filthy and most insanitary condition, and is dangerous to the community in general. Cowsheds are subject to Regulations and said to be satisfactory. Slaughter-houses, bake-houses, and lodging-houses have been regularly inspected and found in good condition. The conversion of closets to the water-carriage system is proceeding; during the year 63 have been so converted. The factories have received attention, and the sanitary arrangements in several cases have been greatly improved and amplified. Canal boats have been inspected, and no cause for complaint was found. The Inspector served notices to abate nuisances in 79 cases, and all have been complied with. A number of smoke observations were taken, but in no case was it considered necessary to institute legal proceedings.

Clayton-le-Moors.—(Area in acres, 1,058; Estimated Population, 9,000). *Medical Officer of Health*, L. TATTERSALL, M.R.C.S.; *Salary*, £25.—Birth-rate 26·5, death-rate 17·3, zymotic rate 2·55, death-rate from phthisis 1·44, and from respiratory diseases 2·22 per 1,000 of population; rate of deaths under one year to 1,000 births 192.

The birth-rate was fractionally lower than in the previous year, while the death-rate rose from 13·4 to 17·3. The zymotic rate was high, and the infant death-rate cannot be regarded as satisfactory. Scarlet fever prevailed extensively, and gave rise to 127 cases and 11 deaths. The disease appeared in May, and continued to the end of the year. The Medical Officer of Health remarks on the want of hospital isolation and the difficulties experienced in checking epidemic disease. “In some cases attendance at schools before freedom from infection has helped to spread the disease.” Much may be done to prevent this danger by examining periodically, with the assistance of the teachers, the children attending schools. The other zymotic deaths were attributed to diphtheria (2), membranous croup (1), typhoid fever (2), measles (4), and diarrhœa (4).

Water Supply is abundant, and “the improvements that are now being made with regard to its filtration will be welcome, as not a few complaints have been made as to its colour and smell.”

Sewerage, Scavenging, &c.—The sewage is treated jointly with that from Great Harwood in tanks, and subsequently by irrigation. The effluent has not given satisfaction, and it is likely that more land will be required for efficient treatment of the sewage. Scavenging, as carried out by the Authority, gives satisfaction. Some extension of the drainage system has taken place in Lower Barnes Street, Super Street, and Church Alley, and a considerable amount of paving has been done in Barnes Street, Barnes Square, Pickup Street, &c.

Sanitary Inspection.—The dairies and cowsheds have not conformed to sanitary requirements, and apparently regulations, if any, are neglected. Slaughter-houses do not meet with approval, and a public abattoir is recommended. Altogether 50 notices were served by the Inspector, and 41 nuisances received attention. No legal proceedings followed.

Clitheroe Borough.—(Area in acres, 2,381; Estimated Population, 11,500).—*Medical Officer of Health*, JOHN J. FRASER, M.R.C.S.: *Salary*, £40.—Birth-rate 25·1, death-rate 15·2, zymotic rate 1·13, death-rate from phthisis 1·21, and from respiratory diseases 2·08 per 1,000 of population; rate of deaths under one year to 1,000 births 138.

The vital statistics, although not so favourable as last year, may be considered fairly satisfactory, and below the average of the urban districts in the county. The general death-rate shows an increase of 1·2, and the zymotic rate 0·28 per 1,000 as compared with 1897, while the proportion of infant deaths to births rose from 88 to 138. Infectious disease did not give rise to much trouble, only 23 cases in 19 houses coming to the knowledge of the sanitary officials; of these scarlet fever was responsible for 14 cases, typhoid fever and diphtheria each 3 cases and 1 death, erysipelas 2 cases, and typhus fever 1 case. Measles was the cause of 3 deaths, and diarrhœa 8; six of the latter were in infants under one year of age, and chiefly due to errors in feeding. There is no hospital accommodation, and the Council has not yet decided the question of providing disinfecting apparatus.

Water Supply is adequate in quantity and of excellent quality.

Sewerage, Scavenging, &c.—The sewage is treated by broad irrigation, but the effluent has, during the year, not given satisfaction to the Ribble Joint Committee. The Chief Inspector,

in October, reported that the "quality of the effluent has deteriorated greatly during the past twelve months," and to improve this he recommends "the more careful use of the tanks, frequent cleansing of sludge, the use of precipitants, and the distribution of the tank effluent over the farm, with an absence of any regard for profit or loss on farming operations." Houses, numbering 546, have been connected with the main sewer during the year, and the stone drains in the old parts of the Borough are slowly being done away with. The system of scavenging is reported as "satisfactory," but the uncovered collecting carts give rise to nuisance, and in a few instances the excreta pails have to be carried through the houses.

Sanitary Inspection.—There are still 310 back-to-back houses, 43 at Low Moor and 267 in Clitheroe proper. The dairies, cowsheds, and milk-shops are said to be satisfactory on the whole, but not yet subject to Regulation, and the same remark applies to bakehouses. Lodging-houses and slaughter-houses are kept clean and well conducted. Some inconvenience is caused by the limited accommodation at the Corporation Abattoir. Workshops have been inspected and several sanitary improvements were made after notice. The Inspector took a considerable number of smoke observations, and in one instance black smoke was emitted for 16 minutes in an hour; there is no time limit in force in the Borough. "Fair" travelling vans, 46 in number, were inspected and found clean and free from sickness. Three old midden privies were converted into w.c.'s, but there are still 51 of these objectionable conveniences remaining. A quantity of bedding was destroyed, and 15 houses were disinfected. The Inspector (Mr. Davies) reports on 306 nuisances, of which 243 were abated without notice, 37 abated after notice, and 26 remain unabated at the end of the year. The nuisances abated included 40 choked drains opened and cleaned, 35 defective closets repaired, 12 dirty premises cleaned, 11 accumulations of refuse removed, &c.

Colne Borough.—(Area in acres, 5,330; Estimated Population, 25,000).—*Medical Officer of Health*, W. LYONS LOVETT, L.R.C.P.E.; *Salary*, £50.—Birth-rate 28·6, death-rate 12·8, zymotic rate 1·76, death-rate from phthisis 1·08, and from respiratory diseases 2·80 per 1,000 of population; rate of deaths under one year to 1,000 births 157.

With the exception of the phthisis rate, all the averages compare favourably with 1897. The general death-rate—which is lower than any rate previously recorded for the Borough—shows a diminution of 1·3 per 1,000, the zymotic rate a reduction of 0·36, and the proportion of infant deaths to births is 157, against 166 last year. The general health of the district has been good, and no serious epidemic visited it. There were two outbreaks of scarlet fever, the first in February and March, and the second during October and November; altogether 152 cases and 8 deaths occurred. Typhoid fever (27 cases, 9 deaths), although prevalent all through the year, did not cause uneasiness as regards the health of the town. During October and November 12 cases were reported in old, ill-ventilated houses situated in unformed streets. The Medical Officer of Health urges the Corporation to re-pave and flag old streets, and also requests that the sewers be regularly flushed. Measles did not occasion a single death, but 17 fatalities were due to diarrhœa, 10 to whooping cough, and 6 to membranous croup. This important district is still unprovided with hospital accommodation of any kind. The Corporation have purchased land with the intention of erecting an Isolation Hospital for small-pox cases, but nothing further has been done.

Water Supply.—There has been an ample supply of water throughout the year, and very few complaints have been received as to its appearance and quality. Dr. Lovett recommends the Council to obtain the right or control of the land surrounding the Reedshaw Moss Reservoir.

Sewerage, Scavenging, &c.—Some of the samples of effluent taken at the sewage works by the Ribble Joint Committee have not given entire satisfaction. The Chief Inspector recommends the provision of increased precipitation tank space, and the uninterrupted use of same. Improvements at the sewage works have taken place, and extensions are contemplated. The Laneslaw Bridge district, with a population of 1,000, has no system of sewerage, and the sanitary arrangements generally are of a primitive character. The scavenging, which is undertaken by the Authority, does not appear to have been as satisfactorily carried out as in previous years. The new refuse destructor has, however, commenced work.

Sanitary Inspection.—Dr. Lovett states that a systematic house-to-house inspection would tend to affect beneficially the health of the town. The condition of the dairies, cowsheds, and milk-shops is reported as “not good,” and attention is drawn to the necessity of having a thorough inspection made. Slaughter-houses are regularly inspected, but there is still room for improvement. The public abattoir is nearing completion. Bakchouses, lodging-houses, factories, and workshops have been visited, and improved in many respects. The Inspector (Mr. Sugden) has served 307 notices for the abatement of a variety of nuisances, details of which are given.

Crompton.—(Area in acres, 2,864; Estimated Population, 14,000).—*Medical Officer of Health*, WILLIAM BROOKE, M.A., M.D.; *Salary*, £60.—Birth-rate 28·0, death-rate 20·0, zymotic rate 2·12, death-rate from phthisis 0·64, and from respiratory diseases 4·93 per 1,000 of population; rate of deaths under one year to 1,000 births 190.

As compared with 1897 the birth and death rates were increased 1·9 and 3·1 per 1,000 respectively. The zymotic rate rose from 0·66 in 1897 to 2·42, and the respiratory rate

from 2·81 to 4·93, while the proportion of infant deaths to births showed an increase of 32 per 1,000. Of the zymotic diseases measles was most fatal (17 deaths), and assumed epidemic proportions in November and December. The public schools were not closed, as the Medical Officer of Health is of opinion that “no great amount of benefit could be expected from such a proceeding.” One case of suspected small-pox was reported and removed to the Cinder Hill Hospital, where, after a few days’ isolation, the patient was discharged. Scarlet fever gave rise to 42 cases and 4 deaths, typhoid fever 15 cases 5 deaths, and diphtheria 2 cases 1 death. Diarrhœa caused 4 deaths, and whooping cough and membranous croup 3 deaths each. The Oldham Corporation’s Hospital at Westhulme was used beneficially for the isolation of 2 cases of typhoid fever and 1 case of scarlet fever.

Water Supply described as good, but the gathering area is not subjected to inspection.

Sewerage, Scavenging, &c.—The sewage works are conducted without complaint. The Council undertake the scavenging of the streets, but contract for the nightsoil removal.

Sanitary Inspection.—The district is periodically inspected, and many minor irregularities have been rectified. Dairies and cowsheds are “fairly good,” although not under regulation. Slaughter-houses were found satisfactory, and the factories and workshops, with one or two exceptions, comply with sanitary requirements. During the year 20 of the old cesspools were converted to the pail system. The Medical Officer of Health states that “the paving and draining of the following streets would materially improve their sanitary condition, viz.: Langley Street, Refuge Street, Queen Street, Edmund Street, Gordon Street, Duckworth Street, and Whitworth Street.” The Inspector secured the abatement of 11 nuisances after the service of notices. No smoke observations were taken.

Croston.—(Area in acres, 2,162; Estimated Population, 2,195).—*Medical Officer of Health*, ALFRED DUCKWORTH, L.R.C.P.E.; *Salary*, £20.—Birth-rate 27·7, death-rate 15·4, zymotic rate nil, death-rate from phthisis 1·82, and from respiratory diseases 2·73 per 1,000 of population; rate of deaths under one year to 1,000 births 98.

Although the zymotic rate was nil, against 1·37 last year, the general death-rate shows an increase of 2·6 per 1,000. The phthisis and respiratory rates advanced 1·82 and 0·90 per 1,000 respectively, but the proportion of infant deaths to births declined from 169 to 98. The district was almost free from infectious disease, only 5 cases being reported, viz., one each from scarlet fever, diphtheria, croup, typhoid fever, and erysipelas. Dr. Duckworth draws attention to the infective character of tuberculosis, and gives details of precautionary measures to prevent its spread. He also desires the Council to consider the question of providing a hospital for the isolation of infectious cases.

Water Supply is good, but a number of houses have not yet been connected to the mains.

Sewerage, Scavenging, &c.—The scheme of sewage interception and treatment has, during the year, received the sanction of the Local Government Board. Many complaints have been received *re* the “abominable condition of the River Yarrow.” Scavenging is satisfactorily performed by the local Authority, the refuse being used for agricultural purposes.

Sanitary Inspection.—The Dairies, Cowsheds, and Milk-shops Order has just come into operation, and it is to be hoped that now a thorough inspection of the cowsheds, &c., will take place. Bakehouses, slaughter-houses, and lodging-houses are conducted satisfactorily. The Inspector has secured the abatement of the nuisances—not detailed—that came under observation.

Dalton-in-Furness.—(Area in acres, 7,223 ; Population (Census 1891), 13,300).—*Medical Officer of Health*, G. H. PATTERSON, M.R.C.S. ; *Salary*, £100.—Birth-rate 31·8, death-rate 15·4, zymotic rate 0·67, death-rate from phthisis 0·97, and from respiratory diseases 2·40 per 1,000 of population ; rate of deaths under one year to 1,000 births 120.

As compared with 1897 the birth and death rates show an increase of 3·5 and 1·2 per 1,000 respectively. The zymotic rate is reduced 1·42, and the phthisis, respiratory, and infant rates remain practically the same as those recorded last year. Infectious disease was less prevalent than in 1897, 45 cases being reported against 57. Typhoid fever with 19 cases and 1 death caused most trouble ; the Medical Officer of Health believes that the continuance of this disease is due to the general contamination of the soil and air with the soakage from the privy middens, and the consequent effluvia arising therefrom. Scarlet fever gave rise to 13 cases 1 death, diphtheria 6 cases 2 deaths, diarrhœa 3 deaths, measles and membranous croup 1 death each. In January a severe epidemic of influenza took place, hundreds of cases arising with 9 deaths. There is yet no Isolation Hospital for this district, but it is stated that one “ will be provided shortly.”

Water Supply.—Complaints have from time to time been received as to the variable quality of the water, but on the attention of the Authority being drawn to the matter a remedy has been provided. “ No improvement in the supply to those parts of the district outside the radius of the mains has been effected, and it is difficult to conceive why the Local Government Board should persist in their policy of refusing to invest the Council with powers under the Public Health Water Act.”

Sewerage, Scavenging, &c.—A considerable amount of work attended the laying new sewers, and special care has been directed to flushing. A scheme for the sewerage of Newton

has been approved. Scavenging as performed by the Authority gives satisfaction.

Sanitary Inspection.—The whole of the district has been kept under careful supervision. Dairies and cowsheds are regularly inspected, but the allowance of air space in the majority of the cowsheds is “terribly inadequate,” and the Authority is urged to put into force some much more stringent regulations. Bakehouses, slaughter-houses, and lodging-houses are described as fairly good, and factories and workshops “well conducted.” The Inspector (Mr. Procter) gives details of sanitary work carried out, including the service of 79 notices for abatement of nuisances on 99 premises, the conversion of 24 midden privies to w.c.’s, 41 defective drains repaired, 8 houses disinfected, &c.

Darwen Borough.—(Area in acres, 5,919 ; Estimated Population, 37,500).—*Medical Officer of Health.* F. G. HAWORTH, M.B., D.P.H. : *Salary*, £200.—Birth-rate 30·1, death-rate 16·8, zymotic rate 2·10, death-rate from phthisis 0·70, and from respiratory diseases 3·14 per 1,000 of population ; rate of deaths under one year to 1,000 births 175.

The birth-rate was fractionally higher than in the previous year, and the death-rate showed a decline equal to 0·5 per 1,000. There was an increased rate from zymotic diseases, and the proportion of deaths under one year to 1,000 births rose from 163 in 1897 to 175. The total cases notified amounted to 192, as compared with 266 in 1896, and 216 in 1897. From scarlet fever there were 93 cases, but only 1 death. Typhoid fever caused 13 cases and 6 deaths, diphtheria 1 death, and membranous croup 6 deaths. Measles prevailed extensively and gave rise to 27 deaths ; to curtail the disease two public elementary schools had to be closed. Diarrhœa proved extremely fatal, and occasioned 14 deaths, against 11 in the previous year. It would be interesting to know the cause of this high mortality, apart from the temperature which

influences so much the production of diarrhœa. The Hospital was used for the isolation of 19 patients suffering—7 from typhoid fever, 11 from scarlet fever, and 1 from diphtheria. Although the hospital was made more use of than in previous years the proportion of removals to total infectious cases notified was very small.

Sewerage, Scavenging, &c.—Some of the effluents taken from the outfall works have not, on analysis, been quite satisfactory to the Ribble Joint Committee. The scavenging is well carried out by the Corporation officials. The refuse is disposed of on land, a destructor being in course of erection.

Sanitary Inspection.—Bakehouses, slaughter-houses, and lodging-houses have complied with sanitary requirements. The dairies, cowsheds, &c., are periodically inspected and subject to regulations sanctioned by the Local Government Board. The factories and workshops have been found in good condition. The Inspector reports that 6,668 houses and premises received attention, and the nuisances abated, 1,199 in number, required the service of 1,162 notices; 44 drains were tested, after complaint, and 41 showed defects; 103 smoke observations were taken, time limit per hour being 15 minutes. In the list of food seized as unfit for human consumption are included the carcasses of 4 beasts, 14 sheep, 4 calves, 1 pig, &c.

Denton.—(Area in acres, 2,593; Estimated Population, 15,069).—*Medical Officer of Health*, W. J. ALLKIN, L.R.C.P.E.; *Salary*, £40 (no claim).—Birth-rate 28·6, death-rate 15·0, zymotic rate 1·06, death-rate from phthisis 1·26, and from respiratory diseases 1·72 per 1,000 of population; rate of deaths under one year to 1,000 births 182.

The statistics presented by Dr. Allkin show an increasing birth-rate with a decreasing death-rate. The general death-rate, which is below the average of the five years 1894-1898,

compares favourably with the rate of the preceding year. The zymotic rate is fractionally lower, and the respiratory rate much more satisfactory, viz., 1.72 against 3.90; but the rate of deaths of infants under one year to 1,000 births still continues high and in excess of the rates recorded in the two previous years. Typhoid fever (30 cases, 3 deaths) and scarlet fever (30 cases, 1 death) gave rise to more sickness than last year, and difficulties are of necessity experienced in checking these diseases, owing to the want of adequate hospital accommodation. Only 3 cases received isolation at the Hyde Hospital, 2 typhoid fever and 1 scarlet fever. Twenty-seven of the typhoid cases took place during the last three months of the year, chiefly in the neighbourhood of Tib Street and Two Trees Lane. The cause was in all likelihood the wet cesspools and deficient drainage, coupled with the insanitary state of some of the houses. No death took place from measles, and there were comparatively few cases. Diarrhœa caused 10 deaths, and diphtheria and whooping cough 1 each.

Sewerage, Drainage, &c.—The new outfall works have been brought into operation as far as the tanks are concerned, and the Mersey and Irwell Joint Committee have requested the Council to bring into use at once the filters, and treat the sewage properly. The Authority undertake the scavenging, and deposit the refuse on land.

Sanitary Inspection.—The district has been from time to time inspected and reported as, generally, in “a good sanitary condition.” All the dairies and cowsheds have been under observation, and many received licenses after complying with the requirements of the Council. The Regulations fix the amount of cubic space required for each cow at 400 feet. Bakehouses and slaughter-houses are well conducted, and factories and workshops have been visited with satisfactory results. The Inspector issued 38 notices, disinfected 11 houses, &c.

Droylsden.—(Area in acres, 1,144; Estimated Population, 10,500).—*Medical Officer of Health*, ANDREW GELLATLY, M.B.; *Salary*, £25 (no claim).—Birth-rate 28·7, death-rate 14·8, zymotic rate 2·19, death-rate from phthisis 0·47, and from respiratory diseases 2·95 per 1,000 of population; rate of deaths under one year to 1,000 births 178.

The health of this district, as judged by the vital statistics, shows a great improvement as compared with last year. With the exception of the infant rate the averages are considerably reduced. The birth-rate is 5·5 per 1,000, the general death-rate 6·0, the zymotic rate 1·32, phthisis rate 0·50, and respiratory rate 1·34 below last year's figures. The zymotic rate is chiefly accounted for by 18 deaths from diarrhœa. Dr. Gellatly attributes much of the diarrhœa among children to the foul emanations from the old privy middens. Measles, which is notifiable in this district, prevailed extensively in June and July, and again in November and December, altogether 133 cases being notified, with 2 deaths; school closure was not resorted to. Of the other infectious diseases scarlet fever caused 8 cases 1 death, and typhoid fever 12 cases 1 death. Nearly all the typhoid cases occurred in old property where the drainage and other sanitary arrangements are defective; one case was removed to the Hyde Fever Hospital. The only hospital provision of this district is at Hyde, where 2 beds are reserved.

Sewerage, Scavenging, &c.—The Chief Inspector of the Mersey and Irwell Joint Committee has had occasion to complain of the unsatisfactory character of the effluent from the sewage works. The construction of the Lumb Brook sewer, referred to last year, has been commenced. The system of scavenging and refuse disposal is said to be "far from satisfactory."

Sanitary Inspection.—Once again the Medical Officer of Health has to complain of the unhealthy condition of many

private streets, and he urges the Council to immediately take steps to have them paved, flagged, and sewered. He also recommends the Council to abolish the old privy middens and introduce the water-carriage system. It is regrettable to note that the dairies and cowsheds are not subject to inspection or Regulations under the Local Government Board Order. Bakehouses and slaughter-houses give satisfaction, but the lodging-houses are not registered. The Inspector issued 277 notices, and with one exception all were complied with without resort to legal proceedings.

Eccles Borough.—(Area in acres, 2,008; Estimated Population, 35,000).—*Medical Officer of Health*, J. H. CROCKER, M.D., D.P.H.; *Salary*, £100 (no claim).—Birth-rate 26·6, death-rate 16·5, zymotic rate 3·22, death rate from phthisis 1·17, and from respiratory diseases 2·54 per 1,000 of population; rate of deaths under one year to 1,000 births 175.

There was a slight increase in the birth-rate and a decrease equal to 0·2 in the death-rate as compared with the previous year. The zymotic rate was 3·22 against 2·7 in 1897, and a mean of 2·36 for the six years ending 1896. The phthisis and respiratory rate showed a reduction, and there was an improvement in the proportion of deaths under one year to births. The cases of diarrhoea proved unusually fatal, and the deaths attributed to this cause amounted to 79, or 28 more than in the year preceding. Directions were issued as to the feeding of infants and the necessity of cleanliness of feeding bottles, home surroundings, &c. Scarlet fever gave rise to 100 cases and 1 death; 50 per cent. of the cases were treated at the Ladywell Sanatorium. From diphtheria there were 36 cases, 10 removed to hospital, and 2 deaths. From typhoid fever 66 cases occurred, 22 removed to hospital, and 6 deaths. The hospital was also used for the isolation of 1 case of puerperal fever and 2 cases of erysipelas. In all cases of infectious disease after recovery of

patients the walls are sprayed with a solution of corrosive sublimate, and in some cases followed by sulphur fumigation and stripping of paper from the walls. The floors and wood-work of the rooms are, in every case, in accordance with recommendation, thoroughly washed, and the infected articles of clothing, bedding, &c., are taken to Ladywell and there dealt with in the steam disinfecter.

Water Supply.—Excellent in quality, obtained from Manchester Corporation. Water from one well was reported as unfit for domestic use.

Sewerage, Scavenging, &c.—The sewage has been satisfactorily treated on the Barton Grange Farm. No precipitant is used. “About 630 million gallons of sewage and storm water have been pumped and successfully treated as against 693 million gallons in 1897.” Water closets are being adopted in all new property, and privy middens are, as far as possible, converted. “All nightsoil is disposed of to farmers and ashpit refuse is tipped at Peel Green.” Mr. Laskey, the Inspector, reports that the surfaces of streets soiled during the emptying of ashpits are swilled with water after the refuse is loaded, but many back streets and passages remain unpaved and in those cases the surface is dredged with a 15 per cent. carbolic powder.

Sanitary Inspection.—A special examination has been made of property within an area bounded by Church Street, Barton Street, and St. James’ Street. In that area there are 138 houses, of which 41 are reported as unfit for human habitation, and 60 others as more or less insanitary. There are 23 cowsheds and 45 dairies and milk-shops registered, and these have been regularly inspected. To 16 bakehouses 76 visits have been paid. One recently established cellar bakehouse was closed and a new one provided above ground. The common lodging-houses and slaughter-houses have received 76 and 96 visits respectively; 99 canal boats came under

observation, and only one irregularity was observed. The smoke test was applied 440 times, and in addition 179 drains were opened for examination after formal written complaint had been made and authority given for that purpose. "Over 98 per cent. of the drains so opened were found to be defective in some particular." House drainage work has been extensively carried out, and 52 privy middens became converted into 90 water-closets. Tabulated particulars are given of 1,696 nuisances remedied and of the work carried out under the supervision of the sanitary officials. Altogether 133 notices were served, 971 letters written, and 5 summonses were issued. Analyses were made of 21 samples of food, and a prosecution in a case of coffee adulterated with 15 per cent. of chicory resulted in the infliction of a fine of 10s. and 21s. 3d. costs.

Failsworth —(Area in acres, 1,073; Estimated Population, 13,500.)—*Medical Officer of Health*, G. W. BEATTIE, M.D.; *Salary*, £40.—Birth-rate 31.1, death-rate 16.8, zymotic rate 1.40, death-rate from phthisis 1.11, and from respiratory diseases 2.66 per 1,000 of population; rate of deaths under one year to 1,000 births 161.

The vital statistics of this district bear favourable comparison with the previous year: the birth-rate is slightly higher, and the death-rate (including 16 deaths which occurred outside the district among persons belonging thereto) shows a satisfactory reduction of 2.2 per 1,000; the zymotic rate also declined from 2.69 to 1.40. The rate of deaths of infants under one year to 1,000 births was reduced from 237 to 161, and the phthisis and respiratory rates show a diminution. Thirty-seven cases of infectious disease were notified, typhoid fever being responsible for 17 cases. Eight of the latter were removed to Monsall Fever Hospital, where 4 died; of the nine patients treated at home 4 terminated fatally. Scarlet fever gave rise to only 3 cases, and one, removed to Monsall

Hospital, had a fatal termination. Diarrhœa caused 5 deaths of children under five years of age in July and September, and 3 deaths were due to whooping cough. The infected houses receive fumigation with sulphur, and articles of clothing, bedding, &c., are disinfected in the apparatus of the Manchester Corporation. During the closing months of the year the rooms in which fatal cases of consumption occurred have, on the advice of the Medical Officer of Health, been disinfected, and precautions taken with a view of preventing further cases from that source.

Water Supply is obtained from Oldham, and it "has been fairly good during the first ten months of the year, but in the latter part of November and the beginning of December the supply was very bad."

Sewerage, Scavenging, &c.—The sewage is treated by chemical precipitant—alumino-ferrie—followed by filtration through polarite filter beds. Early in the year the Mersey and Irwell Joint Committee had to complain that "the tank effluent was being discharged into the stream without filtration," and again at the close of the year a similar complaint was made. The Authority carry out satisfactorily the scavenging, and the refuse is "tipped." The Medical Officer of Health recommends the provision of a destructor.

Sanitary Inspection.—Special visits of inspection have been made throughout the district, with the result that a number of old houses have had sanitary defects remedied. Many private streets, courts, and passages are in a very dirty and insanitary condition, and it is desirable from a sanitary point of view that the streets and passages in question should be paved and drained as early as possible. During the year Regulations have been adopted under the "Dairies, Cowsheds, and Milk-shops Order, 1885," and all the cowsheds have been inspected and measured; "in every case the amount of air space is below the minimum stated in the

Regulations." Bake-houses and slaughter-houses are "fairly satisfactory," and the sanitary arrangements of the factories and workshops are as good as can be expected with the privy system in vogue. The Inspector (Mr. Wilde) gives details of 366 nuisances which came under his observation; of these 339 were abated, and the remainder are being dealt with. Notices numbering 177 were issued, including 12 under the "Housing of the Working Classes Act, 1890." During the year 95 smoke observations were taken; in 23 cases the limit of 8 minutes black smoke to the hour was exceeded. The Inspector served 7 notices, and in one instance legal proceedings resulted in a fine being inflicted.

Farnworth.—(Area in acres, 1,502; Estimated Population, 25,000).—*Medical Officer of Health*, A. KERSHAW, M.D.; *Salary*, £40 (no claim).—Birth-rate 31·4, death-rate 18·4, zymotic rate 3·08, death-rate from phthisis 1·04, and from respiratory diseases 3·24 per 1,000 of population; rate of deaths under one year to 1,000 births 245.

The birth and death rates show a decrease of 2·8 and 4·2 per 1,000 respectively; the zymotic rate, although 0·72 below last year's average, is still high, and the rate of deaths of infants under one year to 1,000 births corresponds exactly with the excessive rate recorded in the previous twelve months. The high zymotic and infant rates are chiefly due to the large number of fatalities from diarrhœa (57), which alone produced a rate of 2·28 per 1,000. Typhoid fever has extensively prevailed, 39 cases having been notified, of which 32, or 82 per cent., were removed to hospital. Dr. Kershaw attributes the continued presence of this disease to the old privy middens, and the unpaved condition of many back yards also conduces to the perpetuation of this disease. Scarlet fever did not cause a single death, but 47 cases were notified, of which 42, or 89 per cent., received isolation in the Joint Hospital. Diphtheria and relapsing fever each gave rise to 2 cases,

puerperal fever 1 case, and erysipelas 8 cases. Whooping cough was the cause of 7 deaths, and measles 1 death. The Joint Hospital has done excellent service; in addition to the 32 typhoid and 42 scarlet fever patients, one diphtheria and one relapsing fever case received treatment. The district is not provided with hospital accommodation for small-pox cases, and the Medical Officer of Health urges upon the Council the desirability of coming to terms with the Radcliffe, &c., Joint Small-pox Hospital Committee.

Sewerage, Scavenging, &c.—The Chief Inspector of the Mersey and Irwell Joint Committee has had occasion to complain of the unsatisfactory condition of the effluent from the sewage works. A scheme is now in hand for the construction of artificial filter beds, but up to the end of the year the Local Government Board's sanction had not been received. The Authority undertakes the scavenging.

Sanitary Inspection.—The slaughter-houses are reported as in "fair" condition, the lodging-houses satisfactorily conducted, but bakehouses are not inspected. "Steps are being taken to bring into operation the inspection of dairies and cowsheds." The Inspector issued 39 notices relating to 72 nuisances, and 21 smoke observations were taken.

Fleetwood.—(Area in acres, 2,848; Estimated Population, 13,500).—*Medical Officer of Health*, JOHN D. FAUSSET, B.A., M.D.; *Salary*, £80 (including £20 for the Port).—Birth-rate 30·4, death-rate 15·3, zymotic rate 2·22, death-rate from phthisis 0·71, and from respiratory diseases 1·92 per 1,000 of population; rate of deaths under one year to 1,000 births 192.

The general death-rate corresponds exactly with that recorded in 1897, while the birth-rate shows a reduction of 3·3 per 1,000. The zymotic rate was reduced 1·51, but the proportion of infant deaths to births rose from 163 to 192. Dr.

Fausset attributes the excessive infant mortality, which is the highest ever recorded in this district, to the "privy-midden fiend," and to the improper feeding of infants. Diarrhoea was the cause of 17 deaths of children under 5 years of age, whooping cough 9 deaths, and measles 1. Infectious diseases were less prevalent than in any year since notification was adopted, only 26 cases being reported, against 55 last year, and 188 in 1896. Scarlet fever of a mild character was notified in 11 cases, and typhoid fever occasioned 12 cases and 3 deaths. "It is to be hoped that the provision of proper hospital accommodation for the isolation and treatment of cases of infectious disease will be completed this year and ready for the reception of patients." The steam disinfecter continues to act efficiently.

Water Supply is obtained from the Fylde Waterworks Company, and as a rule gives satisfaction, but samples have been received showing deficient and irregular filtration. The pump water on three farms was found unfit for drinking, and the mains have been extended to the farms.

Sewerage, Scavenging, &c.—The sewage difficulty remains in the same state as last year, owing to the discharge being into the tidal river. Over 400,000 gallons of water were used for the flushing of sewers. Scavenging is properly carried out by the Council, the refuse being tipped. A more effectual method of refuse disposal, viz., destruction by burning, is desirable.

Sanitary Inspection.—All new houses are being provided with water-closets and dry ash tubs, while in the older property privies and ashpits have been done away with in 87 instances. The bakehouses, lodging-houses, and slaughter-houses are regularly inspected, and may be considered satisfactory. Dairies, cowsheds, and milk-shops receive monthly visits. The Inspector reports the service of 669 notices, and in 7 instances legal proceedings were instituted. Smoke observations are taken "daily."

For the Port Sanitary Authority.—Dr. Fausset again reports a continuance of freedom from infectious disease on board all the vessels which arrived during the year. The Inspector visited and inspected 125 vessels in the dock.

The Port Hospital, containing four beds, is kept ready for the reception of patients. The Customs Boarding Station remains unaltered, and is not satisfactory for purposes of medical inspection.

Fulwood.—(Area in acres, 2,117; Estimated Population (excluding Public Institutions), 2,690).—*Medical Officer of Health*, JOHN GARTH, L.R.C.P.I.; *Salary*, £20.—Birth-rate 18·2, death-rate 11·8, zymotic rate nil, death-rate from phthisis 1·11, and from respiratory diseases 0·37 per 1,000 of population; rate of deaths under one year to 1,000 births 122.

In calculating the rates of mortality, &c., in this district, particulars relating to the following Public Institutions are excluded:—

	No. of Inhabitants.	Births.	Deaths.
Preston Union Workhouse	... 831	... 29	... 143
Barracks ... ..	... 1,008	... 34	... 6
Convent of Little Sisters...	... 125	—	... 14
Harris Orphanage ..	... 130	—	... 1
Poor Law Schools..	... 124	—	... —
Blind Institute ... ..	... 45	—	... —
Total ...	... 2,263	63	164

The birth and death rates show a reduction of 4·9 and 4·7 per 1,000 respectively as compared with the previous year. The zymotic rate is again nil, and the respiratory rate shows a satisfactory diminution; the phthisis rate and proportion of deaths of infants under one year to births are somewhat increased.

The majority of the workhouse deaths tabulated above were of persons belonging to the adjoining County Borough of Preston. Twenty cases of infectious disease were notified (7 of which belonged to Fulwood proper), 8 occurred in the Workhouse, and 5 in the Barracks. Eight cases of scarlet fever were notified, 4 in Fulwood and 4 in the Barracks; the latter were removed to the isolation pavilion at the Preston Royal Infirmary. Typhoid fever was responsible for 5 cases (Fulwood 1, Workhouse 4), erysipelas 5 cases (Fulwood 1, Workhouse 4), diphtheria 1 case—brought about through bad sanitation in a cottage at Ribbleton—and measles 1 case (in the Barracks).

Sewerage, Scavenging, &c.—An application has been made to the Local Government Board for sanctions to loans for purposes of sewerage and sewage disposal, and plans, estimates, &c., have been laid before the Board, but up to the end of the year the date for holding the Local Inquiry had not been fixed. In the matter of sewerage, &c., much delay has taken place. Scavenging is satisfactorily performed by the Authority.

Sanitary Inspection.—The district receives periodical inspections. Slaughter-houses, on the whole, comply with sanitary requirements. Dairies and cowsheds are reported as subject to regulation, but the vigilant inspection promised last year has not taken place. Eighteen notices for removal of nuisances were complied with. The Inspector took 50 smoke observations.

Garston.—(Area in acres, 1,625; Estimated Population, 17,000).—*Medical Officer of Health*, J. A. FISHER, L.R.C.P.E.; *Salary*, £95.—Birth-rate 28·5, death-rate 15·4, zymotic rate 2·64, death-rate from phthisis 1·0, and from respiratory diseases 3·47 per 1,000 of population; rate of deaths under one year to 1,000 births 187.

The vital statistics presented by Dr. Fisher do not compare favourably with the preceding year. A reduction in the

birth-rate of 1·4 is accompanied by an increase of 1·9 per 1,000 in the death-rate, and the phthisis, respiratory, and infant rates are also less satisfactory. Diarrhœa caused 22 fatalities (20 in children under five years of age), and measles was responsible for 15 deaths; the latter disease necessitated the closure of two schools. Scarlet fever prevailed throughout the year, 58 cases being notified, with 1 death. Dr. Fisher is of opinion that many of these cases might have been prevented if parents had only observed reasonable precautions. Typhoid fever gave rise to 22 cases and 1 death. In all cases the premises were inspected and, where the slightest doubt of defective drainage existed, the smoke test was brought into requisition. Altogether 115 cases of infectious disease were notified, against 207 last year. Sixteen cases of scarlet fever received treatment in the Garston Hospital, and 1 case of scarlet fever and 4 of typhoid fever were removed to the Liverpool Hospital. One case of typhoid fever was removed from a ship in the dock by the Port Sanitary Authority.

Sewerage, Scavenging, &c.—The sewage is discharged into the tidal portion of the River Mersey. The Authority undertakes the scavenging, and experience a difficulty in disposing of the refuse. A destructor, however, is in contemplation.

Sanitary Inspection.—The house-to-house inspection of the district has been proceeded with, and resulted in a large number of insanitary conditions being removed, including the conversion of 196 privy middens into the water-carriage system, together with the improved re-construction of the drains of 205 dwelling-houses. A house found in an insanitary condition and without water supply was closed by order of the Council. Dairies and cowsheds (27) have complied with the Regulations, and slaughter-houses (3) have been kept clean. The Inspector issued 2 notices to linewash and cleanse bake-houses, and 11 notices *re* overcrowding were served on lodging-house keepers. Factories and workshops reported as clean and well-ventilated, and a trade nuisance at one of the

works was abated. The nuisance caused by the manufacture of carburetted water gas still exists, and frequent complaints have been made. Details are given of 2,053 nuisances, of which 1,907 were abated. The disinfection of 1,768 articles of clothing and bedding took place, &c.

Golborne.—(Area in acres, 1,679; Estimated Population, 7,000).—*Medical Officer of Health*, JAMES DOBB, L.R.C.P.; *Salary*, £30.—Birth-rate 32·5, death-rate 11·5, zymotic rate 1·71, death-rate from phthisis 0·42, and from respiratory diseases 2·71 per 1,000 of population; rate of deaths under one year to 1,000 births 131.

The vital statistics compare favourably with 1897, as shown by a reduction of 1·0 in the general death-rate, and 0·43 in the zymotic rate. The respiratory rate and proportion of infant deaths to births were also diminished. The zymotic rate was again almost entirely due to diarrhœa which caused 10 deaths. Notifications of 24 cases of infectious disease were received, viz., scarlet fever 9, erysipelas 6, cholera 1, and typhoid fever 8. Hospital accommodation said to be available at the Joint Hospital at Astley was not taken much advantage of, only 1 case (typhoid) being removed.

Water Supply, described as good and ample, is obtained from the reservoirs, situate in the district, belonging to free.

Sewerage, Scavenging, &c.—The sewage, treated by precipitation, gives an effluent far from satisfactory. Scavenging is performed by the Authority.

Sanitary Inspection.—The visits paid to the bakehouses, slaughter-houses, and lodging-houses have proved satisfactory. Dairies and cowsheds are now subject to Regulations, but the amount of cubic space required is not specified. One cowshed at Edge Green has been condemned. Fifty notices were issued for the abatement of nuisances, 46 were complied with and the remainder are receiving attention.

Gorton.—(Area in acres, 1,133; Estimated Population, 24,000).—*Medical Officer of Health*, A. W. MARTIN, L.R.C.P., D.P.H.; *Salary*, £60.—Birth-rate 35·6, death-rate 20·7, zymotic rate 6·33, death-rate from phthisis 1·20, and from respiratory diseases 3·25 per 1,000 of population; rate of deaths under one year to 1,000 births 242.

Owing to the excessive mortality from zymotic diseases, equal to 6·33 per 1,000, there was an increase in the general death-rate (20·7) and infant mortality (2·42) as compared with the previous year. The average death-rate for the last eight years equals 20·0, and the infant rate for the same period averages 187. The abnormally high zymotic rate is due to the exceptional mortality from diarrhœa, which alone caused 109 fatalities, or a rate of 4·5 per 1,000 of the population. In previous Reports the attention of the Council has been called to the pollution of the soil and the atmosphere by the privy midden system prevailing in this district, and to its connection with the high death-rates from zymotic diseases, which for the last 11 years have averaged 3·7 per 1,000. Dr. Martin has recommended that all new property should be provided with water closets, and that all the old deep middens be filled up, flagged or cemented, and provided with a trapped drain. Measles was responsible for 16 deaths—10 of which occurred in January and February—and whooping cough 7 deaths. Scarlet fever was the cause of 85 cases and 2 deaths, diphtheria 8 cases, puerperal fever 2 cases 1 death, and erysipelas 19 cases 1 death. Typhoid fever again assumed an epidemic form in September, October, and November, 79 cases being reported, with 18 deaths. Altogether 193 cases of infectious disease were notified, and 41 were removed to hospital, 40 to the Monsall Fever Hospital, belonging to the Manchester Corporation, and 1 to Withington Workhouse. Of the total patients removed 15 suffered from scarlet fever, 25 from typhoid fever, and 1 from erysipelas. The average cost per case removed to Monsall Hospital was £7 16s. 3d., and the total hospital charges amounted to £313 8s. The terms of agreement

between the Council and the Manchester Corporation soon expire, and it would be well if the Council would take into consideration the advisability of providing its own fever hospital, or of combining with some of the adjoining Authorities.

Sewerage, Scavenging, &c.—The sewage undergoes filtration by the polarite system. Scavenging is performed by the Council's men, and the difficulty experienced in disposing of the refuse will soon be met by the erection of a destructor.

Sanitary Inspection.—House inspection has taken place, 1,310 houses being examined. The cowsheds (12) and milkshops (106) are fairly satisfactory and subject to Regulations. Bakehouses (10) and slaughter-houses (3) are kept under strict supervision, and factories and workshops (31) receive attention. The Inspector of Nuisances (Mr. Prescott) served 282 notices, and successfully instituted legal proceedings in 8 cases. Smoke observations are occasionally taken, but the time limit for the emission of black smoke—16 minutes per hour—is too high. All the infected houses received disinfection, and 13 tons of disinfecting material were distributed.

Grange-over-Sands.—(Area in acres, 1,160; Population (Census 1891), 1,733).—*Medical Officer of Health*, G. H. PATTERSON, M.R.C.S.; *Salary*, £30.—Birth-rate 12·6, death-rate 11·5, zymotic rate 1·73, death-rate from phthisis 2·30, and from respiratory diseases nil per 1,000 of population; rate of deaths under one year to 1,000 births 90.

Excluding the deaths of 8 visitors, the death-rate was 11·5 per 1,000 as compared with 10·5 in the previous year, and 9·2 in 1896. The zymotic rate was accounted for by 2 deaths from measles and 1 from diphtheria. The only notification of infectious disease was the case of diphtheria, which terminated fatally. An extensive outbreak of measles arose in August, and with a view to checking the spread of infection

the schools were closed at the end of August until September 26th, when the disease was found to have subsided. No hospital accommodation has yet been provided.

Water Supply abundant and excellent.

Sewerage, Scavenging, &c.—A new scheme for the sewerage of the whole district is under contemplation ; and plans have been laid before the Local Government Board. Scavenging is attended to by the Authority.

Sanitary Inspection.—The district has been systematically inspected, and it is proposed during the current year to make a house-to-house inspection. The slaughter-houses (2) and bakehouses are kept in good order. No Regulations appear to have been made by the Council under the Dairies, Cowsheds, and Milk-shops Order of 1885, and it is desirable that this omission should be rectified as speedily as possible. No information is given of the work carried out in the Inspector's department.

Great Crosby.—(Area in acres, 1,768 ; Estimated Population, 7,654).—*Medical Officer of Health*, W. S. LIMRICK, L.R.C.P.E. ; *Salary*, £30 (no claim).—Birth-rate 18·0, death-rate 8·2, zymotic rate 0·52, death-rate from phthisis 0·78, and from respiratory diseases 1·30 per 1,000 of population ; rate of deaths under one year to 1,000 births 108.

The health report for this district is very satisfactory, the death-rate being only 8·2, or 3·5 per 1,000 less than in 1897. There was also a reduction in the zymotic rate equal to 1·23, and the phthisis, respiratory, and infant rates showed a satisfactory diminution. The zymotic deaths were represented by diarrhoea alone, 4 fatalities being recorded. Measles and whooping cough did not give rise to a single death. Sixty-two notifications of infectious disease were received, viz., scarlet fever 37, typhoid fever 9, diphtheria 4, erysipelas 9, puerperal fever 2, and croup 1. The Bootle Corporation Hospital at

Linaere is available for the treatment of infectious diseases, and 9 patients (scarlet fever 8 and typhoid fever 1) received isolation. The total hospital charges amounted to £166 7s. 3d.

Water Supply.—Several complaints were made during the year of insufficient pressure.

Sewerage, Scavenging, &c.—As usual the Council have displayed commendable activity in cleaning and flushing all the sewers and house drains, and in many instances the smoke test has been applied. The total estimated weight of deposit removed by these means amounted to 602 tons. Six tall ventilating shafts have been erected during the year. Scavenging is performed by the Authority. A conference with a neighbouring district council has taken place to discuss the question of erecting a joint refuse destructor, but so far nothing tangible has resulted.

Sanitary Inspection.—The district is subject to systematic inspections, and Mr. Watkin Hall (Surveyor and Inspector) gives full details of the sanitary work carried out. Bakehouses and slaughter-houses are well kept, and the dairies, cowsheds, and milk-shops are in good condition, and comply with the Regulations. The Inspector served 145 notices of a comprehensive character, many of them applying to several lots of premises. Seventy-four rooms received disinfection after infectious disease, and 533 articles of clothing, &c., were stoved by the dry heat process.

Great Harwood.—(Area in acres, 2,863; Estimated Population, 12,000).—*Medical Officer of Health*, JOHN PATCHETT, L.R.C.P.E.; *Salary*, £25. —Birth-rate 28·0, death-rate 15·5, zymotic rate 1·0, death-rate from phthisis 0·91, and from respiratory diseases 2·16 per 1,000 of population; rate of deaths under one year to 1,000 births 175.

The birth-rate varied only fractionally from that recorded last year, but the death-rate showed an increase of 2·0 per

1,000. The zymotic, phthisis, and respiratory rates were reduced, but the rate of deaths of infants under one year to 1,000 births rose from 140 to 175. Measles gave rise to a considerable number of cases, with 6 deaths, and Dr. Patchett again suggests that all schoolrooms be disinfected each week-end. The notified cases numbered 63, against 141 in 1897. Typhoid fever was responsible for 29 cases (3 deaths), and these were "attributable, in the majority of cases, to no particular cause, unless the want of filtration of the water used for consumption was an incentive." The scarlet fever epidemic of 1897 continued in the early part of the year under review, and 21 cases were reported, but no death resulted. Diphtheria caused 6 cases and 3 deaths, membranous croup 2 cases (both fatal), erysipelas 4 cases, and puerperal fever 1 case. In all cases of infectious disease precautionary measures have been adopted, but it is to be regretted that this district is totally unprovided with hospital accommodation and disinfecting apparatus.

Water Supply.—The water is of good quality, but requires filtration. The filter beds, now being constructed, will shortly be completed.

Sewerage, Scavenging, &c.—The Chief Inspector of the Ribble Joint Committee reports on the unsatisfactory character of the effluent from the joint sewage works. He says "the irrigation area for the final purification of the tank effluent is both inadequate in area and to a considerable extent unsuitable in character, and that by its means a satisfactory effluent cannot be obtained permanently." Scavenging is undertaken by the Authority, and the refuse tipped.

Sanitary Inspection.—Complaints have been made as to the insanitary condition of houses in Back Lomax Street, Queen Street, and Lower Fold, and the Medical Officer of Health urges the Council to give their immediate attention to these premises. The bakehouses are "fairly satisfactory," and the

slaughter-houses, owned by the Council, are now being put into thorough repair. The only lodging-house in the district is not kept as it ought to be. Dairies and cowsheds undergo periodical inspection, and are kept moderately clean, but some are low and short of ventilation; the Regulations do not specify the amount of air-space required. Factories and workshops are in fair condition, and have nearly all been provided with water-closets and improved means of ventilation. The Inspector served 120 notices for nuisance abatement, and took 16 smoke observations.

Haslingden Borough.—(Area in acres, 7,493; Estimated Population, 19,176).—*Medical Officer of Health*, J. A. HARRISON, M.D.; *Salary*, £50.—Birth-rate 25·2, death-rate 17·4, zymotic rate 2·13, death-rate from phthisis 1·19, and from respiratory diseases 3·70 per 1,000 of population; rate of deaths under one year to 1,000 births 229.

The birth and death rates were reduced 1·9 and 0·6 per 1,000 respectively, as compared with 1897, and there was a rise of 0·61 in the zymotic rate. The proportion of deaths under one year to 1,000 births was extremely high, amounting to 229, against 184 in the previous year. The highest death-rate (24·4) was attained in Town Ward, and the lowest in Helms-shore Ward (12). Scarlet fever had, again, a great prevalence during the year, 220 cases being notified and 4 deaths. Diphtheria and membranous croup contributed 29 cases and 6 deaths. Many of these cases occurred in houses infected with scarlet fever, and “some medical men look upon certain conditions of scarlet fever sore throat as either diphtheria or membranous croup.” The want of an Isolation Hospital renders it almost impossible to prevent the spread of certain infectious diseases, and it is unfortunate that, notwithstanding the repeated representations of the Medical Officer of Health on this subject, no provision has been made. In the case of small-pox, with increasing inattention to vaccination, proper

means of isolation should no longer be delayed. There is also need of a suitable disinfecting apparatus; in one case bedding, &c., had to be sent to Accrington to undergo the process of disinfection. Typhoid fever was unduly prevalent, causing 61 cases and 7 deaths. Measles and diarrhoea—accredited with 14 deaths each—had an unusual prevalence.

Water Supply is mainly obtained from the Clough Bottom reservoir belonging to the Bury Corporation, and part of Helmshore Ward is supplied from Calf Hey. It is satisfactory to note that the water from the Holden Wood reservoir is not now turned into the mains. At Rising Bridge, in Acre Ward, the greater proportion of the houses are badly supplied with water. The majority of the houses between Mr. Worsley's mill and the Wesleyan Chapel are supplied from a private well, and "they are frequently for more than six months at a stretch entirely without water." Stonefold, a small village in Acre Ward, also continues in want of a suitable supply of water.

Sewerage, Scavenging, &c.—The joint outfall works at Ewood Bridge have now been put into operation. Dr. Harrison reports that most of the streets in the centre of the borough have been main-sewered, and the intercepting sewer has made considerable progress, "but as a matter of fact the bulk of the town's sewage is still running in the old stone drains, as comparatively few house drains have as yet been connected with the new sewers." The water-carriage system is being encouraged in preference to the pail system. "The pail closets are emptied into a tank cart during the night, and the tank in turn is emptied into a shoot opening into the main sewer in the Ewood Bridge Road." The Corporation are so satisfied with the good working and economy of the shoot system that they contemplate extending their operations in this direction. Scavenging is done chiefly by the Corporation; in the Grange and Helmshore Wards a contractor does the work.

Sanitary Inspection.—The lodging-houses and bakehouses have been kept in a satisfactory condition. A public abattoir is recommended as preferable to the existing slaughter-houses which are old and difficult to inspect. No Regulations have been framed with respect to dairies and cowsheds, and they do not appear to be under supervision. The Inspector served 38 notices for the abatement of nuisances, and observations were taken of “smoke from all mill chimneys three times during the year, and all millowners have been warned by letter.”

Haydock.—(Area in acres, 2,409; Estimated Population, 8,050).—*Medical Officer of Health*, T. E. HAYWARD, M.B. (Lond.); *Salary*, £40.—Birth-rate 37·1, death-rate 18·6, zymotic rate 3·85, death-rate from phthisis 0·99, and from respiratory diseases 2·23 per 1,000 of population; rate of deaths under one year to 1,000 births 167.

The birth-rate was 0·6 higher than in the previous year, and 2·4 below the mean for the preceding 10 years. The corrected death-rate was 1·8 in excess of last year, and 1·46 above the average rate of the 10 years 1888-97; infant deaths also showed an increase. The rate from zymotic diseases, excluding membranous croup, was high and 0·73 above the rate for 1897. Typhoid fever attained the most marked prevalence with 52 cases and 9 deaths. The majority of the cases occurred in a limited area of West Ward between the Toll Bar and Old Weint Lane. Dr. Hayward discusses the causation of this disease, and draws attention to the fact that “the existence of privy middens is always associated with an undue prevalence of typhoid fever.” Active measures were taken to suppress the disease, including the removal of 15 cases to the Sanatorium at St. Helens. There were only 11 cases and 1 death notified as due to scarlet fever, 2 cases receiving hospital isolation. Measles, however, caused 8 deaths, and it was necessary to close schools in May, June, and September for a period of three weeks in each case. Whooping cough caused 2 deaths, and diarrhoea, which had an extensive prevalence, 11 deaths.

Water Supply.—The Council has decided to discontinue the use of water from the North Florida reservoir, and arrangements have been made for securing a supply in case of necessity from the unfinished pit shafts known as the “Lyme Pits.” This water is very hard and ferruginous, but it is better than having to use “the foul water of the North Florida Reservoir.” The ordinary supply of water is obtained from Rivington.

Sewerage, Scavenging, &c.—Very little has been done in the way of draining the district, and it is obvious that this matter will soon have to claim attention, as well as the provision of adequate outfall works for dealing with the sewage. The want of a proper sewerage system necessitates the continuance of privy middens with their attendant dangers to health. The scavenging is only fairly well carried out by the Authority.

Sanitary Inspection.—Cowsheds, milk-shops, slaughterhouses, and bakehouses have been inspected and found clean and in good order generally. The Inspector served notices to abate 124 nuisances, including 45 defective drains, 7 insufficient closet accommodation, 39 defective ashpits and closets, 29 defective spoutings, &c. One can agree with the Medical Officer of Health that the Sanitary Millenium has not yet come to this district, and it is hoped that the signs of its coming may soon be capable of recognition.

Heaton Norris.—(Area in acres, 1,638; Estimated Population, 9,200.)—*Medical Officer of Health*, F. W. JORDAN, M.D., D.P.H.; *Salary*, £40 (no claim).—Birth-rate 15·7, death-rate 11·0, zymotic rate 1·30, death-rate from phthisis 0·54, and from respiratory diseases 2·17 per 1,000 of population; rate of deaths under one year to 1,000 births 144.

The death-rate of this district, although low, is 1·9 per 1,000 higher than that recorded last year, and the zymotic

rate shows an increase equal to 0.53. The rate of deaths of infants under one year to 1,000 births rose from 82 last year to 144. Dr. Jordan attributes much of the infant mortality to errors in feeding and want of care in household management. Measles and whooping cough did not cause a single death, but diarrhœa was responsible for 4 deaths. Scarlet fever gave rise to 13 cases and 2 deaths, 7 patients suffering from the disease were removed to the Salford Sanatorium. Diphtheria caused some trouble, 13 cases being notified, with 6 deaths; of the 4 cases removed to hospital 1 died. The outbreak of diphtheria in May and June was confined to a small area of property where the sanitary conditions are not satisfactory. In addition to the above, 1 case of typhoid fever (1 removed to hospital), and 2 cases of erysipelas were notified. The Medical Officer of Health again recommends the Council to make provision for a bacteriological examination in cases of diphtheria and typhoid fever. Disinfecting apparatus is still wanting.

Water Supply.—The water is of good quality, but often dirty through want of filtration.

Sewerage, Scavenging, &c.—The sewage undergoes treatment by precipitation with aluminio-ferrie. The condition of the Black Brook has not been improved, and continues very offensive and a nuisance to adjoining houses. The Authority scavenge the district satisfactorily.

Sanitary Inspection.—The old-fashioned privies built up against the house walls are gradually being abolished. Bake-houses and slaughter-houses are in good condition, and the factories and workshops give satisfaction. Special attention has been directed to dairies and cowsheds; some of the farms inspected were wanting in cleanliness, and the cows in several cases were dirty. It is hoped that the strict supervision will be continued, and that the efforts made to secure an increased amount of air-space of shippens will prove successful. The Inspector issued 15 notices for the abatement of nuisances, and all were complied with.

Heywood Borough.—(Area in acres, 3,496; Estimated Population, 25,671).—*Medical Officer of Health*, H. H. J. HITCHON, M.R.C.S.; *Salary*, £100.—Birth-rate 21·1, death-rate 18·7, zymotic rate 2·18, death-rate from phthisis 2·33, and from respiratory diseases 4·24 per 1,000 of population; rate of deaths under one year to 1,000 births 233.

With the exception of the zymotic rate all the averages compare unfavourably with 1897. The general death-rate, although below the average of the 12 previous years (20·2), gave an increase of 1·5 per 1,000, the phthisis and respiratory rates advanced 0·57 and 0·68 respectively, and the rate of infant deaths rose from 196 to the high figure of 233 per 1,000 births, or 26·34 per cent. of the total deaths. Dr. Hitchon says the terrible infant mortality is due, no doubt, to the very unsatisfactory methods adopted in the bringing up of young children. Many mothers work in mills, and return to their employment too soon after confinement, with the result that the infant is taken out in all weathers in the early hours of the morning, and has to be artificially fed, often on unsuitable food. Thirty-two deaths were registered from diarrhoea, and 30 of these were of children under five years of age, the majority of whom had been “artificially fed.” Measles—the cause of 9 deaths—was prevalent in January and February, and necessitated the closure of the schools for a time. Three cases of small-pox occurred and were removed to the Small-pox Hospital, where one succumbed. The large number of unvaccinated children in the borough is a very serious matter, and it is very difficult to understand the utter disregard for vaccination which exists. Scarlet fever gave rise to 38 cases, with three deaths. Most of the attacks occurred in November and December, and originated through a child suffering from the disease attending a day school in the town. Of the other zymotic diseases typhoid fever contributed 14 cases, 1 death; diphtheria 4 cases, 1 death; and whooping cough 9 deaths. Sixty deaths were due to phthisis.

and the Medical Officer of Health recommended certain precautions to be observed by the consumptive patients. The Corporation undertake the disinfection of houses after a death from phthisis on notice being given to the Inspector. With the exception of the Small-pox Hospital there is no isolation accommodation for the borough, and the steam disinfector is only used for the disinfection of the clothes and bedding of patients at the hospital.

Water Supply is reported as "good."

Sewerage, Scavenging, &c.—The effluent from the sewage works did not satisfy the Mersey and Irwell Joint Committee in September, and they required the Corporation to make provision for the treatment of the wash waters from the filters without delay. Scavenging is satisfactorily performed by the Authority, the refuse being "tipped." Borrowing powers have been obtained for the erection of a destructor, and it is hoped this will be proceeded with at once.

Sanitary Inspection.—Many front streets have been paved during the year, but little progress has been made with the paving of back streets and passages. About 200 water-closets and 12 closets on the pail system have been erected. Bakehouses are said to be in "fair" condition, but slaughter-houses are "indifferently" kept. Suitable provision ought to be made for the slaughtering of cattle by the erection of an abattoir. Dairies, cowsheds, and milk-shops are subject to Regulations, and kept in a "fairly good condition." The amount of air space in shippens required by the Regulations is from 400 to 500 cubic feet. The examination of factories and workshops resulted in several old cesspools being converted to water closets. The Inspector served 382 notices, and secured the abatement of 368 nuisances. Legal proceedings were instituted in one case, but the summons was afterwards withdrawn. Seven smoke observations were taken, 59 houses disinfected, &c.

Hindley.—(Area in acres, 2,611; Estimated Population, 22,038).—*Medical Officer of Health*, W. F. W. WILDING, M.R.C.S.; *Salary*, £50.—Birth-rate 37·5, death-rate 20·6, zymotic rate 3·22, death-rate from phthisis 0·86, and from respiratory diseases 4·85 per 1,000 of population; rate of deaths under one year to 1,000 births 183.

The death-rate is fractionally higher than last year's rate, but 0·8 below the average of the eight years 1891-98. The zymotic and infant rates although somewhat reduced are still high, and the respiratory rate (4·85) exceeds the average of the county urban districts. Measles caused 3 deaths, as compared with 24 last year, but in February it was found necessary to close one of the schools, and by doing so the epidemic subsided. Diarrhœa was very prevalent in the autumn, and 39 deaths were ascribed to this cause. The other zymotic fatalities were due to, whooping cough 14, typhoid fever 13, and scarlet fever 2. The number of cases of infectious disease cannot be given, as this is one of the very few districts within the county that has not adopted the Infectious Disease (Notification) Act. The isolation hospital is reserved for small-pox cases only. The provision of a steam disinfecter is under consideration.

Water Supply is excellent, obtained from the Liverpool Corporation Reservoir at Rivington.

Sewerage, Scavenging, &c.—In compliance with an Order of Court obtained by the Mersey and Irwell Joint Committee, the Council have acquired land for sewage works for Hindley Green, and tenders have been let. Scavenging receives attention at the hands of the Authority, and a destructor is in contemplation.

Sanitary Inspection.—Three cottages at Well Fold were certified as unfit for habitation, and an Order was obtained for their closure. No Regulations have as yet been framed under the Dairies, Cowsheds, and Milk-shops Order, and Dr. Wilding reports that in his opinion "it is desirable that some Regulations should be made, because there is not one cowshed in the

district that complies with the recommendations of the Royal Commission on Tuberculosis in reference to cowsheds." Bake-houses and slaughter-houses are "fairly satisfactory," and factories and workshops are in an improved condition as a result of frequent inspections. Notices numbering 224 were served, and in 2 instances legal proceedings followed. Thirty-nine houses were disinfected, but the mode of disinfection is not satisfactory.

Horwich.—(Area in acres, 3,254; Estimated Population, 15,400).—*Medical Officer of Health*, G. H. WHITAKER, L.R.C.P.E.; *Salary*, £40.—Birth-rate 33·6, death-rate 13·4, zymotic rate 0·97, death-rate from phthisis 0·77, and from respiratory diseases 2·66 per 1,000 of population; rate of deaths under one year to 1,000 births 150.

The report submitted by Dr. Whitaker is generally favourable. Compared with 1897 the death-rate shows a reduction equal to 2·9 per 1,000 of the population, and the zymotic rate fell 1·80. The phthisis and infant rates indicate an improvement, but the respiratory rate was fractionally higher. Measles, whooping cough, and diarrhœa did not give rise to much trouble, 1, 5, and 3 deaths respectively being recorded. Notifications of infectious disease numbered 179, scarlet fever contributed 91 cases with 1 death, typhoid fever 23 cases, 2 deaths, erysipelas 45 cases, diphtheria 16 cases, 1 death, puerperal fever 3 cases, 2 deaths, and membranous croup 1 case. The origin of several cases of typhoid fever and diphtheria was attributed to dampness of houses and insanitary surroundings. Two cases of scarlet fever and 3 of typhoid fever were removed for treatment to the hospital at Bolton. A small temporary hospital (8 beds) is provided in the district, but is reserved entirely for small-pox cases. The Medical Officer of Health has long advocated the provision of a hospital for ordinary infectious diseases, and now a joint scheme is in course of formation. The steam disinfector continues to do good work.

Water Supply.—Several new schemes have been under discussion with a view to augmenting the supply, but with no definite result. The supply from Montcliffe caused many complaints for a short time in the summer, and there is still the same unsatisfactory amount of hardness.

Sewerage, Scavenging, &c.—The Chief Inspector of the Ribble Joint Committee reports on the unsatisfactory effluent from the sewage works, and he has had occasion to complain of delay in the construction of additional filters. The scavenging is undertaken by the Authority, the refuse being tipped on Red Moss.

Sanitary Inspection.—Bakehouses, lodging-houses, and slaughter-houses are regularly visited, and found on the whole to be fairly satisfactory. Dairies, cowsheds, and milk-shops are “inspected regularly once a quarter and at other intervals,” and kept in fairly good order, but overcrowding is sometimes apparent. Regulations have been adopted, but these do not state the amount of air-space required. During the year 257 nuisances were reported, 60 were at once abated, and notices served respecting the remaining 197 have resulted in the abatement of about 129, the others consist of old privy-middens, and an effort is being made to convert them into waste-water closets or dry-earth closets. Sixteen smoke observations were taken, and in one case a magistrate’s order to abate nuisance was obtained.

Hurst.—(Area in acres, 754 ; Estimated Population, 6,920).—*Medical Officer of Health*, T. Cooke, M.R.C.S. ; *Salary*, £20.—Birth-rate 33·5, death-rate 19·6, zymotic rate 1·01, death-rate from phthisis 1·15, and from respiratory diseases 3·75 per 1,000 of population ; rate of deaths under one year to 1,000 births 181.

An increase in the birth-rate, equal to 5·4 per 1,000, is accompanied by a decrease in the death-rate of 4·3, and in the

zymotic rate of 3·32 as compared with last year. The respiratory and infant rates are also more favourable. Measles, which last year caused 16 deaths, did not give rise to a single fatality, but 4 deaths were attributed to diarrhœa. Only 17 cases of infectious disease were notified, viz., scarlet fever 10 and typhoid fever 7. All the houses where infectious disease occurred were carefully examined as to drainage &c., and any defects discovered were remedied. None of the cases received hospital isolation, although the hospital at Ashton-under-Lyne is said to be available.

Sewerage, Scavenging, &c.—"As the sewage from this district will be received into the system of the Borough of Ashton-under-Lyne, sewers only are required. The intercepting sewers are completed, but the connections are still to make. An Inquiry has been held for borrowing powers for these." Scavenging, as now carried out by the Authority, shows a marked improvement.

Sanitary Inspection.—The sanitary condition of the district is said to be improving, and the waste-water closet system is being adopted for nearly all the new property; the old-fashioned closets of 148 cottages are in process of conversion to this plan. Bakehouses, slaughter-houses, dairies, and cow-sheds are in a clean and healthy condition, and the latter submit to Regulations. Eight notices to abate nuisances were served and complied with.

Huyton-with-Roby.—(Area in acres, 2,878; Population (Census 1891), 4,625.)—*Medical Officer of Health*, EGERTON F. HALL, M.D.; *Salary*, £30.—Birth-rate 22·2, death-rate 11·0, zymotic rate 0·86, death-rate from phthisis 0·21, and from respiratory diseases 3·02 per 1,000 of population; rate of deaths under one year to 1,000 births 155.

A large decrease in the birth-rate equal to 13·2 per 1,000 as compared with last year is accompanied by a decrease in the death-rate of 2·6. The phthisis and respiratory rates also

declined, but the proportion of infant deaths to births rose from 97 to 155. The zymotic rate is entirely accounted for by 4 deaths from diarrhoea. A slight epidemic of a mild type of scarlet fever occurred in January, February, and March, 15 cases being notified, 5 of which were removed to the Isolation Hospital at Whiston. It was found advisable to close one of the schools for a short time. Typhoid fever gave rise to 4 cases; in two of the houses affected the sanitary arrangements not proving satisfactory were afterwards improved. The Inspector disinfected all the houses that "required so treating."

Water Supply is said to be good.

Sewerage, Scavenging, &c.—No information is given as to the character of drainage and the form of sewage disposal. Scavenging is undertaken by the Authority.

Sanitary Inspection.—Improvements to property in Dinah's Lane, Stanley Road, &c., have taken place, and in other instances defective drainage has been rectified. There are no slaughter-houses or lodging-houses in the district, and the bakehouses are kept in good order. Dairies, cowsheds, and milk-shops are inspected and subjected to Regulations; one of the cowsheds has been improved by the provision of more air-space and alterations in the drainage. Very little information is given as to the work carried out by the Inspector.

Ince-in-Makerfield.—(Area in acres, 2,320; Estimated Population, 21,736).—*Medical Officer of Health*, JOSEPH E. PARKER, M.R.C.S.; *Salary*, £10.—Birth-rate 37·1, death-rate 19·7, zymotic rate 2·43, death-rate from phthisis 0·73, and from respiratory diseases 3·45 per 1,000 of population; rate of deaths under one year to 1,000 births 204.

The birth-rate of this district steadily decreases, and the death-rate is the lowest recorded during the past 10 years, with the exception of 1894. As compared with last year there

is a decline in the above rates equal to 3·0 and 2·3 per 1,000 respectively. The zymotic rate shows a reduction of 1·36, but the infantile mortality continues much above the average. Measles, with 4 deaths, occasioned little trouble, and the method adopted, viz., exclusion from school of infected children for a period of not less than six weeks, has produced favourable results. Whooping cough caused 12 deaths, and appeared to be spreading considerably during the last quarter of the year. Diarrhœa was responsible for 16 deaths. It is satisfactory to note a diminution of scarlet fever, 61 cases, with 4 deaths, being reported, against 101 cases last year. Typhoid fever was notified in 54 instances, a great increase on 1897, when only 19 cases came under observation. Sporadic cases occurred month by month, except August, until September last, when the disease assumed somewhat alarming proportions. Dr. Parker attributes many of these cases to the "abominable stench" emanating from untrapped street gullies. The disease must have been of a severe type, as 14 deaths took place. Diphtheria gave rise to 8 cases, typhus fever 1 case, erysipelas 15 cases, and continued fever 3 cases. The hospital was used for the isolation of 10 cases of scarlet fever, and 10 of typhoid fever. The steam disinfecter has been freely used.

Water Supply described as both good and plentiful.

Sewerage, Scavenging, &c.—Sewage undergoes treatment by precipitation and filtration. Scavenging is under the control of the Council; the refuse being "shot down old pit shafts."

Sanitary Inspection.—The Council has had under consideration about 75 dwelling-houses, which formed the subject of report some time ago. Two houses were demolished, and three others permanently closed. The smoke test was applied to 48 house drains, and as a result the whole of such drains were condemned and reconstructed. Bakehouses, lodging-houses, and slaughter-houses received frequent inspection, as well as 98

canal boats. Dairies and cowsheds are said to comply with the Regulations. The Inspector served 331 notices, and secured the abatement of 223 nuisances. He disinfected 116 houses after infectious disease, and had occasion to destroy the carcase of a cow affected with tuberculosis, and also 170 "frozen" rabbits.

Irlam.—(Area in acres, 4,634 ; Estimated Population, 5,000).

—*Medical Officer of Health*, EDWIN O. JAGO, M.R.C.S. ; *Salary*, £20.—Birth-rate 26·6, death-rate 13·6, zymotic rate 3·0, death-rate from phthisis 1·0, and from respiratory diseases 1·4 per 1,000 of population ; rate of deaths under one year to 1,000 births 150.

The death-rate, although much below the average of urban districts in the county, shows an increase of 3·8 per 1,000 of the population as compared with 1897. The zymotic rate, which last year was 0·4, rose to 3·0, and the proportion of infant deaths to births showed a marked increase. Diarrhœa and measles gave rise to 6 and 4 deaths respectively. The latter had an extensive prevalence at the end of the first quarter of the year, and a house-to-house inspection showed that the great majority of the children suffering from that disease attended St. Mary's School, and it was considered necessary to close the school for three weeks. Eighty-six cases of infectious disease were notified, viz., diphtheria 36 cases with 3 deaths, typhoid fever 27 cases, 2 deaths, scarlet fever 20 cases, and erysipelas 3. The Ladywell Sanatorium at Salford is said to be available for the treatment of cases from this district, but only one case (scarlet fever) was removed. There is no disinfecting apparatus.

Sewerage, Scavenging, &c.—Sewage is treated by intermittent downward filtration through land planted with willows. The whole of the main sewers, private drains, and house gullies have been flushed with town's water. Scavenging is left to the occupiers of houses, and is not at all satisfactory.

Sanitary Inspection.—Bakehouses and slaughter-houses comply with sanitary requirements, certain minor defects in a few cases being removed. Dairies and cowsheds are inspected, but the Council has not yet adopted Regulations under the Order of the Local Government Board. Factories and workshops come under supervision. The Inspector served 40 notices relating to 121 houses, and all were complied with. All the houses where infectious disease had occurred received disinfection.

Kearsley.—(Area in acres, 996; Estimated Population, 9,600).—*Medical Officer of Health*, J. C. EAMES, M.D.; *Salary*, £20 (no claim).—Birth-rate 30·7, death-rate 16·6, zymotic rate 2·29, death-rate from phthisis 0·83, and from respiratory diseases 3·54 per 1,000 of population; rate of deaths under one year to 1,000 births 196.

The birth and death rates showed an increase of 1·1 and 1·2 respectively as compared with the previous year; the zymotic rate was also higher, as well as the proportion of infant deaths to births. There were no deaths from scarlet fever, measles, or diphtheria. Typhoid fever gave rise to 9 deaths, as against 2 in 1897. The cause of so many cases due to a preventable disease like typhoid fever might well engage the attention of the Authority. Diarrhœa was widely prevalent and responsible for 10 deaths. An attempt has been made to provide means of isolation for ordinary infectious cases, but no agreement has finally been made for cases of small-pox.

Sewerage, Scavenging, &c.—The effluent from the outfall works has not given satisfaction to the Mersey and Irwell Joint Committee. In November the clerk to the Committee was instructed to draw the attention of the Council to the bad sample of effluent obtained on the 6th of October, and enquire what steps were likely to be taken to render the sewage treatment more effective. The scavenging is carried out in a fairly satisfactory manner by contract.

Sanitary Inspection.—Bakehouses are said to be “generally good,” and slaughter-houses “fair.” The dairies and cowsheds are under Regulation, and periodically inspected, the air-space for each cow being 500 cubic feet. “The ashpits have been better emptied, but many of them are still in a very dilapidated and dangerous condition, allowing their contents to saturate the surrounding soil.” Some of the worst streets have been paved and sewered; more would have been done in this direction but for the action of the Local Government Board. There is very little information as to the details of sanitary work carried out in the district, and it is hoped that in future reports more evidence of progress will be forthcoming.

Kirkham.—(Area in acres, 857; Estimated Population, 4,094).
—*Medical Officer of Health*, W. W. SHAW, M.R.C.S.;
Salary, £30.—Birth-rate 29·7, death-rate 16·3, zymotic rate 0·97, death-rate from phthisis 1·22, and from respiratory diseases 3·93 per 1,000 of population; rate of deaths under one year to 1,000 births 114.

The health of this district as shown by the vital statistics continues satisfactory. The birth-rate was fractionally lower than last year, but the death-rate rose somewhat. It is satisfactory to note that the proportion of deaths under one year to births was 114 as compared with 154 in the previous year. With the exception of typhoid fever—the cause of 8 cases and 2 deaths—zymotic diseases have been practically absent. The want of an isolation hospital was greatly felt in respect of the typhoid cases.

Sewerage, Scavenging, &c.—The sewage is dealt with in settling tanks, and the effluent finds its way into the estuary of the Ribble. The sewers continue insufficiently ventilated; scavenging is said to be satisfactorily carried out by the Authority.

Sanitary Inspection.—Slaughter-houses are described as “fairly good.” Regulations have not yet been framed under the Dairies, Cowsheds, &c., Order, but periodical inspections are made. The Inspector served 203 notices for the removal of nuisances: 110 had reference to drains, 85 to the improvements of closets, 49 to filthy back yards, &c. The pig-keeping nuisance has also received attention.

Lancaster Borough.—(Area in acres, 1,680; Estimated Population, 39,427).—*Medical Officer of Health*, G. R. PARKER, L.R.C.P. (Lond.); *Salary*, £110 for the Borough and £20 for the Port.—Birth-rate 27·9, death-rate 14·0, zymotic rate 2·07, death-rate from phthisis 0·98, and from respiratory diseases 2·65 per 1,000 of population; rate of deaths under one year to 1,000 births 158.

The general death-rate corrected by the exclusion of the undermentioned deaths was fractionally higher than in the previous year:—

County Asylum	...	...	146 deaths
Royal Infirmary	...	...	43 „
Union Workhouse	...	...	52 „
Bowerham Barracks	...	...	1 „
Ripley Hospital	...	...	1 „
			<hr/>
			243 „

The zymotic rate improved, but there has been an increase in the deaths under the age of 12 months. The Medical Officer of Health reports that “year after year I have drawn attention to this matter with how scant a result is now shown.” The increased infant rate was mainly due to diarrhoea, which contributed 35 deaths under and 5 over five years of age. This disease was made notifiable during July, August, and September, when 318 cases came under observation. Attention is drawn to Dr. Dufour’s system at Fécamp for supplying

sterilised milk to infants as a means of reducing the number of infant deaths. Enteric fever was more or less prevalent during the year, and gave rise to 88 cases and 18 deaths; 36 cases were removed to the Sanatorium, with 8 fatalities, or a case mortality of 28·54 per cent. Disinfection of clothing took place, and the back yards of infected premises were washed with a solution of perchloride of mercury. Scarlet fever occasioned 19 cases with 1 death; of the cases 11 were removed for treatment at the Sanatorium. Notwithstanding great precautions measles again became epidemic; 8 deaths resulted, and the alarming spread of the disease among the children attending the Bowerham Board School necessitated its closure. There was also an extensive prevalence of whooping cough with 13 deaths. Valuable hints are given with regard to phthisis, which, with allied tubercular diseases, accounted for 100 deaths. In addition to the Isolation Hospital or Sanatorium, a permanent Small-pox Hospital has been commenced, which will prove of great value. "This has long been one of the town's sanitary requirements, and it is gratifying to record the promise of its fulfilment."

Water Supply continues to hold a high position of excellence.

Scavenging, &c.—There is now more frequent removal of ashes and waste products; heaps of ashpit refuse are no longer seen in the street awaiting removal. The tip used for the deposit of refuse is becoming rapidly filled up, and the provision of a destructor seems to be indicated.

Sanitary Inspection.—The improvement of the condition of yards and courts goes on steadily, but there has been no condemnation of insanitary dwellings during the year. As yet no Regulations have been framed under the Dairies, Cowsheds, &c., Order, although inspections are made periodically. The Corporation have with benefit to the town opened another

common lodging-house. Canal boats, bakehouses, and the public abattoir have been under careful supervision, and complied with the byelaws. Under the Sale of Food and Drugs Act 31 samples were purchased, and on analysis found to be genuine. Notwithstanding the absence of the Inspector's report there is ample evidence of excellent sanitary work having been carried out.

Port of Lancaster.—The total number of trading vessels entering the Port during the year was 185, representing a tonnage of 39,905 tons, and crews numbering about 1,100. Of these 185 vessels, 133 were engaged in the home trade and 52 in the foreign trade. The home trade vessels were all British, with a total tonnage of 15,021 tons, and about 630 hands, principally British, on board. Of the vessels engaged in foreign trade 42 were of British nationality and 10 foreign. It is satisfactory to note that whenever required, water has been conveyed to the vessels from the borough in the tank cart. No cases of illness occurred among the men, and no nuisance was discovered on board any of the vessels.

Lathom and Bursecough.—(Area in acres, 13,654; Estimated Population, 7,583).—*Medical Officer of Health*, J. G. LAING, L.R.C.P.I.; *Salary*, £40.—Birth-rate 30·3, death-rate 13·9, zymotic rate 1·05, death-rate from phthisis 0·52, and from respiratory diseases 2·37 per 1,000 of population; rate of deaths under one year to 1,000 births 152.

The vital statistics for this district compare favourably with the previous year. There was a reduction in the general death-rate of 2·1, and in the zymotic rate equal to 1·75 per 1,000. The phthisis and respiratory rates were also low. The deaths under 12 months to births, however, show an increase with a rate of 152, against 129 in 1897. The only zymotic deaths were ascribed—3 to diphtheria and 5 to diarrhœa.

There were 14 cases of illness due to scarlet fever, and 13 to typhoid fever. The Joint Hospital was used for the isolation of 2 cases of scarlet fever.

Water Supply gives great satisfaction; it is said to be abundant and constant. A few cottages, situated some distance from the main, are still without a proper water supply.

Sewerage, Scavenging, &c.—"The upper part of Lathom (Westhead) has a sewage works, at which sewage is treated by filtration and precipitation. The lower portion has been under consideration for some time past, and a scheme has been submitted to the Local Government Board." The scavenging is satisfactorily carried out by the Authority.

Sanitary Inspection.—The bakehouses and slaughterhouses have been frequently inspected, and the report is favourable as to their sanitary condition. The dairies and cowsheds are under Regulation and well looked after; the air-space required per cow is 800 cubic feet. Canal boats received attention, and in two instances infringements of the Act were observed. Altogether 19 notices have been served by the Inspector for the abatement of 62 nuisances. No legal proceedings were required.

Lees.—(Area in acres, 202; Estimated Population, 4,129).—

Medical Officer of Health, WM. STANFIELD, M.D.; *Salary*, £20.—Birth-rate 24·7, death-rate 16·4, zymotic rate 0·96, death-rate from phthisis 1·69, and from respiratory diseases 3·87 per 1,000 of population; rate of deaths under one year to 1,000 births 196.

There was a somewhat reduced birth-rate, and a death-rate the lowest ever recorded in this district. The proportion of deaths of children under the age of 12 months to 1,000 births (196) was much above the average, and 36 in excess of the previous year. The Medical Officer of Health reports that

"this high mortality of infants may in part be attributed to the fact that many of the mothers having to work in the factory, their children do not get a sufficiency of breast milk, nor is due care taken to provide an equally nourishing substitute." The principal zymotic diseases claimed 2 deaths from measles and 2 from diarrhoea. In addition notifications were received concerning 5 cases of scarlet fever and 1 case of enteric fever; of the former, 2 cases were treated at the Oldham Corporation Hospital at Westhulme.

Sewerage, &c.—The main intercepting sewers are now completed and connected with the Oldham system, and the sewage is conveyed to the Corporation outfall works for treatment. It is hoped that the house drains, &c., will be coupled up without delay.

Sanitary Inspection.—Insanitary conditions observed during the periodical visits made by the Medical Officer of Health and Sanitary Inspector have been remedied. The notices served had reference chiefly to blocked drains and defective ashpits and privies. Slaughter-houses are said to be kept in a satisfactory state, but no mention is made of dairies and cowsheds or of the details of sanitary work. Table C is still unsupplied.

Leigh.—(Area in acres, 6,347; Estimated Population, 37,000).—*Medical Officer of Health*, J. KING, M.B.; *Salary*, £100.—Birth-rate 34·8, death-rate 18·6, zymotic rate 3·51, death-rate from phthisis 1·45, and from respiratory diseases 3·32 per 1,000 of population; rate of deaths under one year to 1,000 births 199.

As compared with 1897 the birth and death rates were reduced 0·8 and 1·4 respectively. Unfortunately zymotic diseases proved exceptionally fatal, the rate being 3·51 or 0·35 in excess of the high rate for the previous year. The rate

from phthisis was above the average, and the same may be said of the death-rate from infantile diseases. An inquiry might, with advantage, be instituted as to the causes of these high mortalities. The most pronounced danger to childhood in this district seems to be diarrhœa, including gastro-enteritis and enteric catarrh, which accounted for 88 deaths, equal to 12·7 per cent. of the entire deaths. Two of the three conditions mentioned by Dr. King as influencing this disease, namely, improper feeding and insanitary surroundings, might well claim the attention of the Council. Typhoid fever had an excessive prevalence, 132 cases and 15 deaths being recorded, against 32 cases and 3 deaths in the preceding year. "In a number of cases insanitary conditions were found to exist, such as faulty house drains, deep wet ashpits, unpaved yards, and defective sink pipes. In one house, where there were 4 cases, the w.c. was found to be untrapped and of faulty construction." Several cases were caused by the improper removal of nightsoil from an infected house during the illness of a patient, and before the disease was notified. The epidemic prevalence of measles was shown by the occurrence of 20 deaths. School children living in the infected street or immediate locality were kept at home, but school closure, so useful in some localities, was not adopted. Of the other infectious diseases, scarlet fever contributed 57 cases, 1 death, and diphtheria, with membranous croup, 21 cases, 12 deaths. The Joint Hospital was used for the isolation of 27 cases of scarlet fever and 26 cases of typhoid fever. One case of small-pox was isolated at the hospital of the Bolton Rural District Council.

Water Supply good in quality. Seven well waters examined were found to be unfit for drinking purposes, and their further use discontinued.

Sewerage, Scavenging, &c.—The new precipitation tanks for Leigh and Atherton were brought into operation in August.

The treatment for the present will be one of precipitation only, as the laying out of the land for filtration purposes is not yet completed. The Medical Officer of Health recommends the conversion of the privies to the water-carriage system, and it is hoped that the Council will follow his advice. The old fashioned privy ashpit is an abomination which ought not to exist in any district sanitarily governed. Scavenging is contracted for, and it may be pointed out that efficiency is more likely to be secured when the local Authority performs this work.

Sanitary Inspection.—Bakelhouses have been inspected, with satisfactory results. Two lodging-house keepers were fined by the magistrates for overcrowding. The provision of an abattoir is recommended, as, owing to the number and situation of the private slaughter-houses, inspection becomes difficult, and “quantities of diseased meat can thus be disposed of without detection.” The canal boats (118) were found generally in a satisfactory state. A case of scarlet fever discovered in one of the boats was removed to the Sanatorium, the boat being detained for disinfection. Complaints are made of a nuisance arising from a portion of the untreated sewage from Abram and Hindley polluting the streams of Leigh. A disinfector is urgently needed, already too much delay has taken place in considering the matter. The Inspector (Mr. Jackson) served 608 notices, and secured the abatement of a variety of nuisances, including defective drains 196, defective gullies and sink-pipes 194, water-closet drains choked 93, privies converted to w.c.’s 105, privies repaired or reconstructed 117, defective roofs and spouting 182, houses requiring repair 112, damp houses repaired 23, filthy houses 71, insanitary yards 129, &c. Twenty-eight houses in Diamond Street, Reddish Court, Hill Street, Ridyard Court, St. Ann’s Square, St. Mary’s Square, Hargreaves Square, Aekers Court, Warrington Road, and Westleigh Mill have been condemned as unfit for human habitation and demolished.

Levenshulme.—(Area in acres, 605; Estimated Population, 10,000).—*Medical Officer of Health*, H. E. EDLIN, M.R.C.S.: *Salary*, £30 (no claim).—Birth-rate 23·6, death-rate 11·2, zymotic rate 0·6, death-rate from phthisis 1·4, and from respiratory diseases 1·8 per 1,000 of population; rate of deaths under one year to 1,000 births 84.

Dr. Edlin submits a very favourable report—"There has been a comparatively small amount of sickness; the incidence of infectious disease has been slight, and both the zymotic and general death rates are very low. There has been a considerable amount of sanitary work done, and a general steady improvement in the hygienic conditions of the district has been maintained." The death-rate, 11·2, is the lowest on record, and 3 below the mean for the past 10 years. The proportion of deaths under 12 months to 1,000 births was 84 as compared with 188 in 1897. The principal zymotic deaths were ascribed, 1 to typhoid fever, and 5 to diarrhœa. Membranous croup also caused 1 death. Scarlet fever was notified in 18 instances but no death resulted; 3 cases were removed for treatment at the Isolation Hospitals belonging to the Stockport and Hyde Corporations.

Water Supply good, obtained from Manchester. Five houses are supplied with water from wells.

Sewerage, Scavenging, &c.—The drainage gives satisfaction, the sewage being treated by arrangement with the Withington Authority. The scavenging is well performed by the officials of the Council.

Sanitary Inspection.—Frequent and systematic inspections of the district have been made by the Medical Officer of Health and Inspector. The water-carriage system is recommended in lieu of privy ashpits. Factories (5) and workshops (42) have been found generally well ventilated and cleanly; in a few instances requirements as to white-washing were pointed out. Smoke observations (20) were made, but no case apparently

required legal proceedings; the time limit 15 minutes per hour allows of a serious nuisance to take place. The slaughter-houses (4) and bakehouses (17) gave no cause for complaint. Dairies and cowsheds (16) were found in many cases seriously deficient in cubic space per cow, lighting and ventilation. Eight back-to-back houses were condemned, 2 being demolished and the others converted into through houses; there are 12 back-to-back houses still remaining. One case of overcrowding came under notice. The Inspector (Mr. Hughes) reports the abatement of 115 nuisances; 129 preliminary notices were issued and 20 nuisances abated on verbal instructions. Twelve privies and 6 slop-water closets were converted to the water closet system, and other nuisances of a miscellaneous character received attention.

Leyland.—(Area in acres, 3,651; Estimated Population, 6,500).—*Medical Officer of Health*, E. BERRY, L.F.P.S.G.; *Salary*, £20. —Birth-rate 24·3, death-rate 14·7, zymotic rate 0·92, death-rate from phthisis 1·38, and from respiratory diseases 2·0 per 1,000 of population; rate of deaths under one year to 1,000 births 202.

The statistics were marked by a reduction of 8·7 per 1,000 in the birth-rate, and 4·8 in the death-rate as compared with the previous year. The zymotic rate was reduced 0·24, but the infantile mortality rose considerably and gave the high figure of 202 per 1,000 births. Dr. Berry ascribed this lamentable loss of infant life to injudicious feeding, and to the fact that many mothers take their children out in the early morning to be nursed while they go to work. Typhoid and continued fever prevailed to some extent, 23 cases being notified, with 1 death. Scarlet fever only gave rise to 1 case, and erysipelas 1 case. Four deaths were due to diarrhoea, and 1 to diphtheria. The Joint Hospital at Heath Charnock makes progress. The district is at present unprovided with disinfecting apparatus.

Water Supply is good, but rather hard.

Sewerage, Scavenging, &c.—The sewage works are about to be extended by additional precipitation tanks and filtration area. There are 22 new ventilating shafts to manholes in the district. Scavenging is done by contract, and now well attended to.

Sanitary Inspection.—Three houses condemned as unfit for human habitation have been put in a sanitary condition. Bakehouses, slaughter-houses, factories and workshops are kept clean and periodically limewashed. Dairies, cowsheds, and milk-shops are satisfactorily conducted, but the Council have not yet adopted Regulations under the Order of the Local Government Board. The Inspector served 13 notices, and the majority were complied with. Legal proceedings taken against a farmer for carting excreta on the public highway in the daytime resulted in a conviction.

Litherland.—(Area in acres, 855; Estimated Population, 9,215).—*Medical Officer of Health*, BENJ. SUMNER, M.D.; *Salary*, £25 (no claim).—Birth-rate 34·0, death-rate 15·9, zymotic rate 3·36, death-rate from phthisis 0·75, and from respiratory diseases 2·16 per 1,000 of population: rate of deaths under one year to 1,000 births 187.

The population of this district increases rapidly, and has more than doubled itself since the last census. The birth-rate, which last year was very high, gave a reduction of 8·2 per 1,000, but the death-rate showed an increase of 3·8. The zymotic and infant rates were also less favourable, due chiefly to diarrhoea, which caused 21 deaths of infants. Whooping cough and measles contributed 6 and 2 fatalities respectively. Seventy-four cases of infectious disease were notified, viz., scarlet fever 37, typhoid fever 31, diphtheria 3, erysipelas 2, and puerperal fever 1. Fifteen patients suffering from scarlet fever and 8 from typhoid fever were removed to

the Bootle Corporation Hospital at Linacre. Occasionally infected bedding is stowed at Waterloo, but the Medical Officer of Health desires the Council to provide an efficient steam disinfecter in the district.

Sewerage, Scavenging, &c.—The sewage discharges itself into the river Mersey. Dr. Sumner advises the erection of ventilating shafts to the sewers at various points. Scavenging is carried out by contractors in an efficient manner.

Sanitary Inspection.—Special attention has been given to the condition of passages, entries, &c., and several drains have been tested by smoke. Six privies were converted to w.c.'s, and several old ashpits filled up. Dairies and cowsheds are subject to Regulations; the amount of air-space fixed at 450 cubic feet is a low standard, and the Medical Officer of Health recommends the Council to increase it to 700 cubic feet per cow. Bakehouses and slaughter-houses are under supervision, as well as the premises used for offensive trades. Canal boats passing through the district undergo examination. Fifty-two notices for the abatement of nuisances were issued, and 62 houses disinfected.

Littleborough. (Area in acres, 7,736; Estimated Population, 11,850). —*Medical Officer of Health*, G. K. PITCAIRN, M.B.; *Salary*, £40.—Birth-rate 24·3, death-rate 12·7, zymotic rate 0·84, death-rate from phthisis 0·5, and from respiratory diseases 2·02 per 1,000 of population; rate of deaths under one year to 1,000 births 100.

The report presented by Dr. Pitcairn is again satisfactory, the death-rate, being 1·1 per 1,000 less than last year, stands as the lowest rate recorded for the district. The zymotic, phthisis, respiratory, and infant rates are also diminished. No serious epidemic visited the district, though there were many cases of influenza in March and April, of which 5 ended fatally. At the same time measles was somewhat prevalent, 2 deaths

taking place, while diarrhoea gave rise to 6 deaths, and typhoid and continued fever 7 cases, 2 deaths; 1 case from the latter disease was traced to a defective drain, and 2 others to the milk supply. Scarlet fever contributed 12 cases, erysipelas 5 cases, and diphtheria and puerperal fever 1 case each. The Medical Officer of Health again asks the Council to take steps to provide hospital accommodation, either alone or conjointly, with neighbouring districts.

Water Supply is obtained chiefly from Rochdale, but there are still a few private supplies.

Sewerage, Scavenging, &c.—The sewage is treated by precipitation and filtration, and the effluent apparently gives satisfaction. Scavenging is attended to by the Authority, the refuse being used on land.

Sanitary Inspection.—Bakehouses, lodging-houses, and slaughter-houses satisfy the officials. Factories and workshops come under supervision, and canal boats passing through the district are inspected. Dairies and cowsheds comply with the Regulations, but the amount of air-space per cow is not fixed. The Inspector served 250 notices, and in one case legal proceedings followed. Fifty-nine smoke observations were taken, and 16 notices served for the time limit (8 minutes) allowed for emitting black smoke, being exceeded.

Little Crosby.—(Area in acres, 1,811; Population (Census 1891), 641).—*Medical Officer of Health*, W. ROWLANDS, M.R.C.S.; *Salary*, £6 (no claim).—Birth-rate 12·4, death-rate 10·9, zymotic rate nil, death-rate from phthisis 3·12, and from respiratory diseases 3·12 per 1,000 of population; rate of deaths under one year to 1,000 births 125.

Only 7 deaths were recorded, and two of these were from injuries accidentally received. Once again there was not a single death from zymotic disease, and only one notification

was received, viz., typhoid fever in School Lane, the origin of which could not be traced.

Water Supply.—With the exception of a few cottages the water is obtained from the Liverpool Corporation.

Sewerage, Scavenging, &c. The privies and cesspools have been regularly and systematically emptied, and the catch-pit and ditch into which the village sewer empties itself have been regularly cleaned out.

Sanitary Inspection.—As Form “C” has not been supplied little information is available as to the sanitary work carried out. Two privies have been re-built at a proper distance from the houses, and several minor nuisances, such as choked drains, &c., have been remedied.

Little Hulton.—(Area in acres, 1,706; Estimated Population, 7,256).—*Medical Officer of Health*, J. H. MARSH, L.R.C.P.; *Salary*, £20.—Birth-rate 30·5, death-rate 15·8, zymotic rate 1·92, death-rate from phthisis 0·82, and from respiratory diseases 4·27 per 1,000 of population; rate of deaths under one year to 1,000 births 171.

The birth and death rates were fractionally lower than in 1897; and the zymotic, phthisis, and respiratory rates also showed a reduction. Unfortunately the infantile mortality increased from 150 to 171 per 1,000 births, and this, Dr. Marsh says, “is attributable to improper feeding, undue exposure, and such like preventable causes.” Measles of a severe type prevailed at the beginning of the year in the Worsley Road part of the district; precautions were taken to prevent its spread; only two cases ended fatally. Diarrhoea, said to be due to unfavourable climatic conditions, unripe fruit, and improper food, caused 8 deaths. Twenty-five notifications of infectious disease were received, including 8 typhoid fever and 7 scarlet fever cases; four of the typhoid patients died. The Joint Isolation Hospital was used for the treatment of only 1 case of typhoid fever.

Sewerage, Scavenging, &c.—The effluent from the sewage works is not satisfactory. The Council intend to construct new outfall works and do away with the present works. The sewage of Little Hulton, which now goes to Barton Old Hall Farm, will be taken to the new works. Scavenging, except in West Ward, is done satisfactorily by the contractors. Streets are in a better condition than last year, but a number of back streets are unpaved, and impassable in wet weather.

Sanitary Inspection.—Bakehouses, slaughter-houses, factories, and workshops were all found in good order. Dairies and cowsheds receive periodical inspection, but unfortunately Regulations are not in force. A large number of damp, unpaved back yards and uncovered ashpits exist to endanger the health of the community. The Inspector served 40 notices, most of which have been attended to.

Little Lever.—(Area in acres, 806; Estimated Population, 5,700).—*Medical Officer of Health*, J. S. PICKFORD, M.R.C.S.; *Salary*, £20.—Birth-rate 28·0, death-rate 17·8, zymotic rate 4·73, death-rate from phthisis 1·05, and from respiratory diseases 2·45 per 1,000 of population; rate of deaths under one year to 1,000 births 225.

As compared with 1897, the death-rate shows an increase of 4·2 per 1,000, the zymotic rate rose 2·96, and the proportion of deaths of infants to 1,000 births was 225, against 130 last year. The large mortality among children under one year of age was due to the severe epidemic of diarrhoea which prevailed during the hot months of August and September, and accounted for the deaths of 13 infants. Altogether 18 fatalities took place from this disease. The other zymotic deaths were ascribed to measles 3, typhoid fever 5 (three in hospital), and scarlet fever 1. Typhoid fever, with 23 cases, made its appearance during the latter nine months of the year, and Dr. Pickford believes that the old privy midden nuisance contributed to the number of cases. Scarlet fever caused 10 cases of illness, diphtheria

11, erysipelas 13, and puerperal fever 1. The Joint Hospital was used for the treatment of 10 patients, all suffering from typhoid fever.

Water Supply, obtained from the Bury Corporation, is reported as very unsatisfactory.

Sewerage, Scavenging, &c.—Sewage, treated by chemical precipitation and filtration, gives a satisfactory effluent, and scavenging, as carried out by the Authority, secures efficiency.

Sanitary Inspection.—Six houses in Turkey Vale are unfit for human habitation, and ought to be closed; they have only one closet, no ashpit accommodation, and no proper water supply. Bakehouses and slaughter-houses were found, on inspection, to be well kept, as were also the dairies and cowsheds, though in some cases the latter are very deficient in air space and ventilation. The Medical Officer of Health urges the Council to make Regulations under the Dairies, Cowsheds, and Milk-shops Order. Sixty-five notices for the abatement of nuisances received attention.

Little Woolton.—(Area in acres, 1,387; Population (Census 1891), 1,131).—*Medical Officer of Health*, C. STUART PERMICK, M.B.; *Salary*, £20. —Birth-rate 20·3, death-rate 9·7, zymotic rate 1·76, death-rate from phthisis 0·88, and from respiratory diseases 1·76 per 1,000 of population; rate of deaths under one year to 1,000 births 130.

The death-rate, again low, 9·7 per 1,000, is slightly higher than last year. The zymotic rate (1·76) was due to 2 deaths from diarrhœa; for the fifth year in succession not a single death has taken place from any of the notifiable infectious diseases. Only two cases—attributable to scarlet fever—were notified, and one of these was contracted outside the district. The Medical Officer of Health has had printed a pamphlet, "Hints to prevent the spread of consumption," and proposes to deliver a copy at every house in the district. A retaining

fee is paid to the Whiston Fever Hospital for the use of one bed.

Water Supply is obtained chiefly from the Liverpool Corporation. A well was closed on the water being found on analysis to be unfit for drinking purposes.

Sewerage, Scavenging, &c.—Drainage and sewage disposal remain in the same condition as last year. Scavenging is efficiently carried out by the Authority.

Sanitary Inspection.—The Inspector reports that the two slaughter^houses have been regularly inspected and found well conducted. There are nine cowsheds in the district, and the air-space per cow varies from 370 to 850 cubic feet. The Regulations as to dairies and cowsheds made last year have not yet been put into operation. Seven notices for the abatement of nuisances were served.

Longridge.—(Area in acres, 2,858; Estimated Population, 4,500).—*Medical Officer of Health*, GEO. JUKES, L.R.C.P.; *Salary*, £10 (no claim).—Birth-rate 27·7, death-rate 16·4, zymotic rate 1·11, death-rate from phthisis 2·0, and from respiratory diseases 3·77 per 1,000 of population; rate of deaths under one year to 1,000 births 200.

With the exception of the respiratory and infant rates the statistics vary but slightly from those recorded last year. The respiratory rate rose 1·77 per 1,000, and the infant mortality—equal to one-fifth of the total children born—was excessive. Whooping cough prevailed somewhat extensively in April and May, but only caused 2 deaths. Scarlet fever gave rise to 8 cases, typhoid fever 9, erysipelas 5, and puerperal fever 2. Longridge is included in a joint district for hospital purposes, but beyond acquiring land no practical action has been taken.

Sewerage, Scavenging, &c.—The sewage treatment at the outfall works has been of a satisfactory character, but there still

remains a considerable number of drains unconnected with the main sewers. Scavenging, as performed by the Council's men, gives satisfaction. The refuse is emptied into a disused quarry.

Sanitary Inspection.—Dairies, cowsheds, and milk-shops receive regular inspection. In most cases the ventilation is good, and, with one or two exceptions, the farms are well supplied with pure water. The bakehouses gave rise to no complaint, but lodging-houses and slaughter-houses were found not altogether satisfactory. The Inspector secured the abatement of 31 nuisances after formal notice, and 17 houses were disinfected.

Lytham.—(Area in acres, 2,238; Estimated Population, 5,950).

--*Medical Officer of Health*, J. H. JENKINS, M.R.C.S., D.P.H.; *Salary*, £150.—Birth-rate 19·5, death-rate 12·9, zymotic rate 0·67, death-rate from phthisis 0·84, and from respiratory diseases 2·01 per 1,000 of population; rate of deaths under one year to 1,000 births 189.

As compared with 1897 the birth-rate shows an increase of 1·2, and there was a fractional decrease in the death-rate, the latter being 1·8 below the average for the past 20 years. The zymotic rate and deaths from pulmonary affections were satisfactory, but the infant rate was higher than in any previous year, and affected to a large extent the children of the working classes. Dr. Jenkins suggests that a course of instruction should be given in schools on the importance of cleanliness, food, and all that concerns an infant. The principal zymotic diseases were productive of 1 death from typhoid fever and 3 from diarrhœa; foul midden privies played an important part in the production of both these diseases. Scarlet fever was notified in 10 instances, and there was a freedom from measles, whooping cough, and diphtheria.

Water Supply excellent in quality. Owing to the growth of the town the pressure is becoming insufficient.

Sewerage, Scavenging, &c.—The sewage is discharged into the estuary of the Ribble in its raw state. The West End sewer is being laid, but the work does not make rapid progress. The Liggard Brook still receives sewage, which, becoming putrid, poisons the neighbourhood. The nuisance arising from privy middens has been kept down by frequent removal of refuse, but conversion to the water-closet system is urgently needed. Many complaints have been made as to the “desultory and inefficient manner” of scavenging adopted by the workmen employed by the Council.

Sanitary Inspection.—The bakehouses are reported as clean, and the slaughter-houses, insufficient in number, give rise to no complaint. The keeping of pigs near to dwelling-houses has frequently been referred to as offensive and injurious to health, notwithstanding the cleanly conditions which seem to be observed. The systematic visits to the dairies and cowsheds have not led to the discovery of any serious infraction of the byelaws; greater cleanliness and better ventilation have been generally secured. The Inspector reports that he dealt with 309 nuisances, and 568 putrescent substances found on the shore have been removed and buried. Twenty-nine premises have been disinfected, and 555 articles passed through the hot-air oven.

Middleton Borough.—(Area in acres, 4,741; Estimated Population, 25,600).—*Medical Officer of Health*, WILLIAM GRAHAM, M.D., D.P.H.; *Salary*, £100.—Birth-rate 26·5, death-rate 16·2, zymotic rate 2·26, death-rate from phthisis 1·25, and from respiratory diseases 3·32 per 1,000 of population; rate of deaths under one year to 1,000 births 166.

The death-rate compares favourably with 1897; it was 4 per 1,000 below the mean of the past 12 years, and the lowest recorded for the borough. There was an increase in the zymotic rate, and a decrease in the proportion of infant deaths to births. Diarrhæa, with 39 deaths, showed exceptional

malignancy, and measles, with 12 deaths, was the most fatal of the infectious diseases. Partial school closure took place. Scarlet fever contributed 39 cases and 2 deaths, and typhoid fever 16 cases and 3 deaths. The Marland Hospital at Castleton was used for the isolation of 3 cases of scarlet fever and 6 cases of typhoid.

Water Supply is good, and the gathering area of the Heywood and Middleton Water Works receives inspection.

Sewerage, Scavenging, &c.—The system of sewerage has been considerably extended. The outfall works are now in operation, but only a portion of the drainage system is connected up. The Corporation attend to the scavenging in a satisfactory manner, and deposit the refuse on farms, &c. The Medical Officer of Health regrets that so many slop-water closets are being provided instead of fresh-water closets.

Sanitary Inspection.—Attention has been paid to insanitary property, several back-to-back houses have been closed or converted into through houses. In reference to cowsheds "it is very difficult to get Regulations carried out, and in most instances the occupiers are at the mercy of the owners in this matter, and would only be too willing to see proper provision made in regard to space, light, and drainage." Slaughter-houses require close attention, and over 700 visits were made to them. Bakehouses and lodging-houses satisfied sanitary requirements. The Inspector examined 38 canal boats and 3 infringements of the Acts were detected. Generally the boats were clean and free from overcrowding and infectious disease. The smoke nuisance received much attention in this district, and 73 observations were made; the time limit of 12 minutes for the emission of black smoke was exceeded in 7 instances, and in each case a notice was served and complied with. The time during which the emission of black smoke took place averaged two minutes eight seconds per hour. The Inspector (Mr. Norton) served 74 notices by order of the

committee, and 171 preliminary notices ; there were 4 seizures of unwholesome food, 149 rooms were fumigated, and 3 samples taken under the Sale of Food and Drugs Act. A detailed list is given of 364 nuisances abated during the year, and of nuisances requiring abatement.

Milnrow.—(Area in acres, 5,183 ; Estimated Population, 9,660).—*Medical Officer of Health*, CHAS. OGDEN, M.R.C.S. ; *Salary*, £40.—Birth-rate 17·8, death-rate 13·1, zymotic rate 0·72, death-rate from phthisis 1·13, and from respiratory diseases 2·58 per 1,000 of population ; rate of deaths under one year to 1,000 births 139.

A remarkably low birth-rate—3·0 less than in the previous year—was accompanied by a low death-rate, 13·1 per 1,000. The zymotic rate was favourable, and also the proportion of infant deaths to births, although somewhat higher than in 1897. The principal zymotic diseases were responsible for 2 deaths from enteric fever, 3 from measles, and 2 from diarrhœa. Scarlet fever caused 5 cases of sickness, but all recovered. There is neither hospital provision nor proper disinfecting apparatus.

Water Supply obtained almost entirely from the Roehdale and Oldham Corporations.

Sewerage, Scavenging, &c.—From a report presented to the Mersey and Irwell Joint Committee it appears that “the outfall works are now in operation, and a satisfactory sample of the effluent has been taken and reported upon.” Scavenging as carried out by the Authority gives satisfaction.

Sanitary Inspection.—Periodical inspections of this district have been made with advantage. Certain improvements have been effected in the sanitary state of two spinning mills. Dairies and cowsheds have been found satisfactory except in 4 instances, and no complaint is made respecting bakehouses

or slaughter-houses. The Inspector (Mr. Hoyle) served 21 notices for the removal of nuisances, and took 39 smoke observations; in 6 cases the emission of black smoke exceeded 8 minutes, and offenders were communicated with. Whenever infectious disease breaks out disinfectants are supplied, and also in the case of typhoid fever special pails with close-fitting lids for the reception of the excretions.

Morecambe.—(Area in acres, 1,753; Estimated Population, 11,071.)—*Medical Officer of Health*, J. W. WATTERSON, M.B.; *Salary*, £50 (no claim).—Birth-rate 24·8, death-rate 15·6, zymotic rate 2·16, death-rate from phthisis 0·63, and from respiratory diseases 2·25 per 1,000 of population; rate of deaths under one year to 1,000 births 167.

As compared with 1897 the birth-rate was 4·6 higher, and the death-rate, although low, showed an increase of 2·8. The zymotic rate also increased owing to the unusually large number of fatalities (16) from diarrhœa. Scarlet fever of a mild type occasioned 13 cases, with only 1 death. Typhoid fever was responsible for 19 cases and 5 deaths. Measles and whooping cough prevailed to some extent, and caused 4 deaths each. Diphtheria and membranous croup had 3 deaths. The Sanatorium was used for the isolation of 22 cases of scarlet fever; it is satisfactory to note that a new building will soon be ready for the reception of patients.

Water Supply, as shown by recent chemical and bacteriological tests, is obtained from a pure source.

Sewerage, Scavenging, &c.—A new scheme of sewerage and sewage treatment will soon be proceeded with; the details are not given. The scavenging is carried out by the Authority in a fairly satisfactory manner; much improvement will be effected when the destructor is ready for work, and when the ashpits are emptied with greater regularity and more frequency.

Sanitary Inspection.—Bakehouses have been kept clean and well appointed. In connection with slaughter-houses difficulties have arisen respecting water supply, disposal of offal, &c. The dairies and cowsheds do not get the attention they deserve, and it is hoped as a result of the consideration of the subject by the Council that something effective will be done to prevent any chance of the milk supply becoming contaminated. The Inspector (Mr. Lamb) reports that 913 drains have been tested with water or smoke; disinfection has been carried out by means of the steam disinfecter, and 70 rooms have been fumigated. Details are given of nuisances remedied, including 107 defective drains and gullies, 54 defective w.c.'s, 44 defective ashpits and privies, 14 defective down spouts, &c. No legal proceedings were necessary to enforce the removal of any nuisance.

Mossley Borough.—(Area in acres, 3,929; Estimated Population, 14,785).—*Medical Officer of Health*, J. HEALEY, M.B.; *Salary*, £40 (no claim).—Birth-rate 25·0, death-rate 17·2, zymotic rate 2·63, death-rate from phthisis 1·48, and from respiratory diseases 3·17 per 1,000 of population; rate of deaths under one year to 1,000 births 151.

The statistics presented by Dr. Healey are not quite so favourable as the preceding year, all the averages being increased. The general death-rate rose 4·3 per 1,000, the zymotic rate 1·27, phthisis rate 0·32, respiratory rate 0·58, and the rate of deaths under one year to 1,000 births was 151, against 113 in 1897. The increase in the infant and zymotic rates was due, chiefly to the epidemic of measles in March and April, which resulted in 17 deaths, and to 9 diarrhoea deaths in the latter part of the year. In a special report on the outbreak of measles the Medical Officer of Health says he found, on visiting the infant department of two schools, that over 50 per cent. of the children were absent. He at once recommended

closure of the schools for a short period. The Infections Disease (Notification) Act is not in force, but 53 cases were "voluntarily" notified. Scarlet fever was prevalent in January and February in Upper Mossley and Roughtown, and again in July in Roaches; altogether 38 cases were notified, with 1 death. Typhoid fever was the cause of 12 cases, 5 deaths; diphtheria 3 cases, 2 deaths; and puerperal fever 1 case. The Council have made arrangements for a bacteriological examination in all doubtful cases of typhoid fever. The borough, with the rest of the county, will soon have the advantage of compulsory notification, which will prove more efficient than the present arrangement. The question of providing a hospital for the isolation of infectious cases deserves consideration, as the May Hills Hospital can only be used for small-pox. A modern disinfecting chamber is also required.

Water Supply.—Since the lower part of the town has received water solely from the springs at Yeoman Hey there has been no complaint. The supply to the other parts of the borough is good.

Sewerage, Scavenging, &c.—The sewage is treated by the International process. Scavenging, in the hands of the Authority, is efficiently performed.

Sanitary Inspection.—A considerable amount of sanitary work connected with house drainage is being carried out. The drains of 137 houses have been rectified, and 145 houses are being dealt with. Bakehouses, lodging-houses, and slaughter-houses are properly conducted, and the same may be said of factories and workshops. It has been found necessary on several occasions to draw the attention of farmers to the insanitary state of cowsheds. Dairy, &c., Regulations, are in force, but the amount of air space required per cow is not specified. The Inspector secured the abatement of 66 nuisances, after the service of 36 notices. Three schools and 32 houses were thoroughly disinfected.

Moss Side.—(Area in acres, 420; Estimated Population, 27,000).—*Medical Officer of Health*, S. HOLGATE OWEN, M.D.; *Salary*, £70 (no claim). Birth-rate 16·7, death-rate 11·2, zymotic rate 1·14, death-rate from phthisis 0·92, and from respiratory diseases 1·59 per 1,000 of population; rate of deaths under one year to 1,000 births 158.

The vital statistics for the year are upon the whole satisfactory, and vary but slightly from those recorded last year. The general death-rate is the lowest recorded during the past seven years. The greatest number of deaths occurred in Claremont Ward, and the fewest in Whalley Range Ward; in North and East Wards the numbers are exactly the same. In East Ward the deaths among children under one year of age slightly exceeded the high mortality of the two previous years, although the cases of infectious disease notified, and the deaths from zymotic disease were fewer in this than in any of the other wards. During the months of August and October measles assumed a threatening aspect, but active measures were at once adopted to check the progress of the disease. The school authorities afforded every possible opportunity for inspection of the scholars, and no doubt this had good results. Four deaths were due to measles, 20 to diarrhœa, and 1 to whooping cough. Scarlet fever gave rise to 86 cases 1 death; in 17 instances imperfect isolation was found to account for the spread of the disease. Typhoid fever was the cause of 28 cases 4 deaths, and diphtheria was responsible for 12 cases 1 death; examination of the houses where these diseases occurred resulted in the discovery of sanitary defects in 19 instances. The Council have made an arrangement for bacteriological assistance in doubtful cases of diphtheria and typhoid fever. Forty cases were removed to the Monsall Fever Hospital, viz., scarlet fever 28, typhoid fever 10, diphtheria 1, and erysipelas 1.

Water Supply is described as "good."

Sewerage, Scavenging, &c.—Sewage works have been provided, but on one occasion the Inspector of the Mersey and Irwell Joint Committee found untreated sewage from the works being turned direct into the river Mersey. The Authority were prosecuted and fined £10 and costs. Scavenging is performed satisfactorily by the Authority, the refuse being tipped or disposed of to farmers.

Sanitary Inspection.—Dairies, cowsheds (6), and milkshops (55) have been systematically inspected, and found satisfactory as regards general cleanliness, ventilation, and drainage. The public abattoir and the one private slaughterhouse have been well conducted, and the bakehouses, except that they are chiefly in cellars, gave rise to no complaint. Factories and workshops received attention, and in one instance a notice was served to remedy sanitary defects. The Inspector issued 372 notices, and all were complied with. Smoke observations are “taken weekly,” but no time limit for the emission of black smoke has been fixed.

Much Woolton.—(Area in acres, 970; Population (Census 1891), 4,545). *Medical Officer of Health*, CHARLES V. VEREKER, L.R.C.P.I.; *Salary*, £30.—Birth-rate 28·8, death-rate 11·6, zymotic rate 0·66, death-rate from phthisis 1·76, and from respiratory diseases 1·76 per 1,000 of population; rate of deaths under one year to 1,000 births 114.

As compared with 1897, the birth-rate shows an increase of 2 per 1,000, while the death-rate—the lowest recorded for many years—is reduced 7·1. There was a considerable decrease in the zymotic rate, and also in the infantile mortality. Dr. Vereker states that many of the deaths of children are due to the effects of artificial food and carelessness in the management of infants, combined with the use of “patent soothing mixtures.” The only deaths from zymotic diseases were ascribed to diarrhoea 2, and scarlet fever 1. Twenty-four notifications were received, viz., scarlet fever 8,

typhoid fever 11, and erysipelas 5. One of the scarlet fever patients was removed to the Whiston Hospital, where one bed is reserved for the use of this district.

Sewerage, Scavenging, &c.—The sewage from the eastern portion of the district receives treatment at the outfall works, while the sewage from the western portion is discharged into the Garston sewers. Special attention has been given to the scavenging of streets, especially those in the worst parts of the township.

Sanitary Inspection.—Eighteen orders were issued for sanitary amendments under The Housing of the Working Classes Act, 1890. In a few instances the old privy middens have been replaced by w.c.'s, but many of these "sources of danger" still remain. Bakehouses (4), slaughter-houses (5), dairies and cowsheds are frequently inspected and found in fair order. The keeping of pigs and fowls in close proximity to houses still gives rise to complaint. The Inspector served 18 notices, secured the abatement of 120 nuisances, took "frequent" smoke observations, &c.

Nelson Borough.—(Area in acres, 3,395; Estimated Population, 32,000).—*Medical Officer of Health*, A. P. MILLAR, M.D.; *Salary*, £60.—Birth-rate 27·6, death-rate 12·3, zymotic rate 0·96, death-rate from phthisis 0·71, and from respiratory diseases 2·56 per 1,000 of population; rate of deaths under one year to 1,000 births 149.

The birth-rate was increased 0·3, and the death-rate reduced 1·8 per 1,000 as compared with 1896; the zymotic rate was 1·47 below last year's rate, and the infant mortality 149 against 173. Measles, which last year prevailed extensively and accounted for 51 deaths, only caused 4 fatalities in the period under report, but whooping cough became responsible for 14 deaths and diarrhoea 8. Scarlet fever gave rise to 85 cases, 1 death, typhoid fever 26 cases, 2 deaths, diphtheria

29 cases, 3 deaths, and continued and puerperal fevers 1 case each. In all the typhoid cases special buckets for the reception of the patients' discharges were supplied, and regularly removed to the destructor. Thorough disinfection of clothing and bedding is impossible without proper apparatus. There is no hospital accommodation, except for small-pox patients, but the Council have been negotiating for the acquisition of a site for a proposed hospital, but so far without success.

Water Supply is pure and abundant.

Sewerage, Scavenging, &c.—Satisfactory precipitation tanks have been made, but the filters are insufficient in area. Additional filters are in course of construction. Scavenging is satisfactorily carried out by the Corporation staff. The Local Government Board's sanction has been obtained for power to borrow £7,000 for the erection of a new refuse destructor.

Sanitary Inspection.—Much private street improvement work has been done at a cost of £16,000, but there still remain many streets in a pitiable condition. Bakehouses and the one lodging-house have been satisfactorily conducted. One new slaughter-house received a license, so that now there are altogether 20 private slaughter-houses in the borough, and many of them are badly adapted for the purpose. A public abattoir would be more suitable. Dairies and cowsheds are subject to Regulations, but the amount of air-space required per cow is not specified. No seizure of unsound butchers' meat took place, but 368 haddocks, 8 quarts of shrimps, and 19 rabbits were condemned and destroyed. The Inspector (Mr. Priestley) received and investigated 268 complaints *re* nuisances, and had occasion to serve 87 statutory notices; altogether 406 nuisances were abated. Legal proceedings were instituted in 6 instances, with the result that 3 complied with the notices on withdrawal of summonses, and in the remainder fines were inflicted. Two smoke observations were taken, but no time limit for the emission of black smoke has yet been adopted.

Newton-in-Makerfield.—(Area in acres, 3,103; Estimated Population, 14,816).—*Medical Officer of Health*, J. WEBB WATKINS, M.D.; *Salary*, £75.—Birth-rate 36·1, death-rate 15·6, zymotic rate 1·34, death-rate from phthisis 1·14, and from respiratory diseases 2·49 per 1,000 of population; rate of deaths under one year to 1,000 births 156.

The mortality statistics show a general improvement as compared with the preceding year. The death-rate was reduced by 2·5 per 1,000, and the zymotic and infant rates were also considerably diminished. Diarrhœa, attributable chiefly to climatic conditions, caused 16 deaths, and measles 2 deaths. Fifty-five cases of infectious disease were notified, viz., scarlet fever 36, typhoid fever 7 (2 deaths), erysipelas 11 (1 death), and puerperal fever 1 case (1 death). The Warrington Corporation Hospital provided hospital isolation for 26 cases—23 scarlet fever and 3 typhoid fever. The disinfecting apparatus is of a primitive character.

Water Supply continues to be good in quality, but not uniformly satisfactory as regards quantity and pressure.

Sewerage, Scavenging, &c.—At the west outfall works, where about 50,000 gallons are daily received, the treatment of the sewage is imperfect. In order to secure good results these works ought to be remodelled and further provision made for filtration. At the central sewage works the treatment (in December) was equally unsatisfactory, the effluent being allowed to leave the works in a putrid condition after passing through subsidence tanks. Owing to the inadequacy of the water supply the sewers were not efficiently flushed. Scavenging is performed satisfactorily by the Authority, but a difficulty is experienced in disposing of refuse and excrementitious matter. The multiplication of places of deposit is undesirable, and the Council ought, without delay, to erect a destructor.

Sanitary Inspection. The paving and sewerage of streets proceeds but slowly, and Dr. Watkins attributes many of the cases of infectious disease to their insanitary condition. The streets requiring immediate attention are Athol Street, and the extensions (west) of Haydock, Grafton, Tamworth, and John Streets. A large area west of the two last named streets and of Crown Street is stated to be no better than a huge "tip." Bakehouses and slaughter-houses receive inspection, but the bye-laws relating to the latter are not rigidly carried into practice. Dairies and cowsheds are subject to Regulations, and factories and workshops come under observation. The Inspector secured the abatement of 675 nuisances after formal notice. "Continuous" smoke observations are taken, and 2 summonses to appear before the Committee were issued.

Norden.—(Area in acres, 6,033; Estimated Population, 4,000).

Medical Officer of Health, JOHN A. GRINDROD, M.R.C.S.; *Salary*, £30.—Birth-rate 19·0, death-rate 14·7, zymotic rate 1·25, death-rate from phthisis 0·50, and from respiratory diseases 1·50 per 1,000 of population; rate of deaths under one year to 1,000 births 92.

The health of this district as shown by the vital statistics continues satisfactory. The only zymotic deaths (5) were ascribed to measles. In October this disease broke out among the scholars attending the Wesleyan Day and Sunday School, and in December St. Paul's School was similarly attacked; both schools were closed for a month. Only 18 cases of infectious disease were notified, viz., scarlet fever 15, typhoid fever 1, and erysipelas 2. The typhoid case was probably due to drinking water from a well contaminated by the manuring of adjacent land. There is no Isolation Hospital or disinfecting apparatus available for the district.

Water Supply to the higher part of the district is not good.

Sewerage, Scavenging, &c.—Sewage is treated by precipitation and filtration, but the Ribble Joint Committee have had occasion to complain of the unsatisfactory character of the effluent. Scavenging receives attention at the hands of the Authority, and is efficiently performed.

Sanitary Inspection.—During the year a considerable number of old privies were converted to the pail system. The condition of the bakehouses, slaughter-houses, factories and workshops is said to be good, but the cowsheds are not “satisfactory on the whole.” The Inspector served 4 notices, and took 9 smoke observations.

Ormskirk.—(Area in acres, 573; Estimated Population, 6,797).—*Medical Officer of Health*, WILLIAM ANDERTON, F.R.C.S.E.; *Salary*, £50.—Birth-rate 33·6, death-rate 20·3, zymotic rate 2·64, death-rate from phthisis 0·14, and from respiratory diseases 5·14 per 1,000 of population; rate of deaths under one year to 1,000 births 126.

Excluding the 53 deaths of persons not belonging to the district, which took place in the Union Workhouse, the death-rate was 20·3, or 1·6 below the rate recorded in the previous year. The gross rate corresponded to 30·3 per 1,000. The zymotic rate shows a reduction of 0·37, phthisis rate 0·81, and respiratory rate 1·52. The proportion of infant deaths to 1,000 births declined 58. The zymotic rate was entirely accounted for by 9 deaths from diarrhœa, and 11 from diphtheria. The latter disease was responsible for 34 cases, due largely to the wet privy middens and imperfect ventilation of the sewers. The other infectious cases were ascribed to—scarlet fever 8, typhoid fever 7, erysipelas 7, and puerperal fever and croup 1 each. The Isolation Hospital was used for the treatment of 16 cases, viz., diphtheria 11, scarlet fever 4, and typhoid fever 1. Four of the diphtheria patients died. The steam disinfecter was used 12 times for the disinfection of clothing, bedding, &c.

Water Supply. The analysis made by Dr. J. Campbell Brown shows that the water is good and entirely free from organisms.

Sewerage, Scavenging, &c.—As a result of the under-draining of the sewage farm, together with the 200 yards of extra bacterial filters, a great improvement in the effluent has been effected. The sewers undergo regular flushing and disinfection, and 6 ventilating shafts are about to be erected. Scavenging is now undertaken by the Authority, and gives more satisfaction than formerly.

Sanitary Inspection.—The courts and alleys have been systematically swept and cleansed, and 38 houses, condemned as unfit for human habitation, have been closed, pulled down, or reconstructed. The majority of the cowsheds are in a very unsatisfactory condition, and totally unfit for the purpose. The Council, in July, adopted Dairy, &c., Regulations under the Order of 1885, but they have not yet received the sanction of the Local Government Board. Bakehouses, lodging-houses, and slaughter-houses receive periodical inspection. Twenty-six nuisances were abated after notice, and in 2 cases legal proceedings followed.

Orrell.—(Area in acres, 1,618; Estimated Population, 5,140).

—*Medical Officer of Health*, JOHN L. JOHNSTONE, M.R.C.S.; *Salary*, £30. Birth-rate 39·6, death-rate 19·8, zymotic rate 2·72, death-rate from phthisis 1·16, and from respiratory diseases 3·69 per 1,000 of population; rate of deaths under one year to 1,000 births 137.

A decrease of 3·2 per 1,000 in the birth-rate is accompanied by an increase in the death-rate equal to 1·4 as compared with last year. The zymotic rate rose 1·75, and the phthisis, respiratory, and infant rates were less favourable. Dr. Johnstone attributes much of the mortality among infants to the unsuitable food given by nurses whilst the mothers are at work in the mills. Whooping cough, from March to October, was very

troublesome, and caused 8 deaths. Diarrhœa contributed 3 deaths, and scarlet fever, diphtheria, and enteric fever 1 death each. The extent of the prevalence of infectious disease could not be ascertained, as this district is one of the very few where the Infectious Disease (Notification) Act has not been adopted. The Council have from time to time been urged to put in force this Act, and also to consider the question of providing hospital accommodation and disinfecting apparatus.

Sewerage, Scavenging, &c.—The sewage is carried to the sewers of the Wigan Corporation at Gathurst, and then on to their sewage farm at Hoscarr Moss. Scavenging, as performed by the Authority, “affords no real cause for complaint.”

Sanitary Inspection.—Some old property in Church Street has been pulled down, and improvements have also taken place at Lamberhead Green. The area known as Queen’s Terrace, Far Moor, is described as “disgustingly filthy, and hardly fit for pigs to live in.” Dairies and cowsheds are not subject to Regulations, and with two exceptions do not conform to sanitary requirements. The Medical Officer of Health finds it very difficult, without these Regulations, to obtain proper management of the shippous. Bakehouses and slaughterhouses are kept in good order. During the year 13 new closets were built to replace 8 old closets and 4 open middens. Twenty-one written and several verbal notices were served, but no legal action was necessary.

Oswaldtwistle.—(Area in acres, 1,883; Estimated Population, 15,500). *Medical Officer of Health*, WM. LOYD, M.R.C.S.; *Salary*, £60.—Birth-rate 30·0, death-rate 14·3, zymotic rate 1·03, death-rate from phthisis 0·45, and from respiratory diseases 3·44 per 1,000 of population; rate of deaths under one year to 1,000 births 156.

As compared with last year the birth-rate shows an increase of 1·9 per 1,000, and the death-rate—which is the

lowest recorded for the district with the exception of 1891—a decrease of 1·0. The zymotic rate is reduced 2·43, and the phthisis, respiratory, and infant rates are also more favourable. Diarrhoea was the cause of 8 deaths, but measles and whooping cough did not give rise to a single fatality. The epidemic of scarlet fever, which commenced in the autumn of 1897, continued to the end of January, 13 cases being notified. Typhoid fever gave rise to much trouble, and was responsible for 27 cases, with 7 deaths. Some of the cases were attributed to milk from a farm where the water supply was found to be liable to pollution, and in other cases this disease was associated with the privy midden nuisance. Dr. Loynd recommends the inclusion of phthisis in the list of notifiable diseases. There is a small-pox hospital with 10 beds, but the district is entirely unprovided with hospital accommodation for ordinary infectious cases.

Water Supply.—Many of the water mains are corroded and partly blocked with deposit. To obviate this the Medical Officer of Health advises the construction of filter beds. The water supply to Belthorn has been laid on, but complaints have been made as to the quality of the water.

Sewerage, Scavenging, &c.—The treatment of the sewage has not altogether satisfied the Ribble Joint Committee, and additional filters are about to be made. The sewage from the districts of Belthorn and Knuzden is not yet subjected to any form of treatment. Scavenging on the whole gives satisfaction, but a few complaints arise about the emptying of ashpits.

Sanitary Inspection.—Seven houses were condemned as unfit for human habitation and closed. A number of streets continue unpaved, but the sewerage and paving of some are in progress, and others have been let to contractors. Many back yards are unflagged, and the keeping of poultry gives rise to complaints. Sixty-five privies were, during the year, converted to water closets. Bakehouses, lodging-

houses, factories and workshops come under supervision, and are in good order. Slaughter-houses have been regularly visited and found clean, but Dr. Loynd says "it is advisable to close all private slaughter-houses, after three years' notice, now that there is sufficient accommodation at the public abattoir." All the farms were visited, and improvements made at most of them, but many are still unsatisfactory. The Inspector served 226 notices, which secured the abatement of 213 nuisances. Legal proceedings were instituted against three fish hawkers for exposing for sale unsound fish. In each case a fine was inflicted. No smoke observations were taken.

Padiham.—(Area in acres, 976; Estimated Population, 13,700).

Medical Officer of Health, W. SMITHIES, L.R.C.P.; *Salary*, £25 (no claim).—Birth-rate 24·0, death-rate 14·8, zymotic rate 1·02, death-rate from phthisis 0·58, and from respiratory diseases 3·28 per 1,000 of population; rate of deaths under one year to 1,000 births 173.

The statistics vary but slightly from those recorded last year. The general death-rate, zymotic rate, and infant rate are somewhat increased, while the phthisis rate shows a diminution. The zymotic deaths were ascribed—3 to diarrhœa, 9 to scarlet fever, and 1 each to diphtheria and typhoid fever. Scarlet fever had a very extensive prevalence, 197 cases being notified, but no particulars appear in the report as to the cause of the epidemic, or as to the means adopted to curtail the spread of the disease. Typhoid fever gave rise to 3 cases, continued fever 3, diphtheria 9, erysipelas 16, and membranous croup 1. Active steps are being taken to provide disinfecting apparatus, and the Joint Hospital at Burnley is approaching completion.

Water Supply is described as "good."

Sewerage, Scavenging, &c.—Occasionally samples of the effluent from the sewage works were not up to the standard required by the Ribble Joint Committee. Absence of proper

purification may probably arise from over-saturation of the land. Scavenging is performed satisfactorily by the Authority, the refuse being tipped into an old quarry.

Sanitary Inspection. — Bakehouses, lodging-houses, slaughter-houses, factories and workshops are periodically inspected and found in good order. Regulations under the Dairies, Cowsheds, and Milk-shops Order have been adopted, and the shippens are said to be in a satisfactory condition. The Inspector served 57 notices, all of which were complied with.

Pemberton. (Area in acres, 2,894; Estimated Population, 21,758).—*Medical Officer of Health*, ROBERT HARTLEY, M.R.C.S.; *Salary*, £50. —Birth-rate, 38·7, death-rate 19·6, zymotic rate 1·93, death-rate from phthisis 0·87, and from respiratory diseases 3·95 per 1,000 of population; rate of deaths under one year to 1,000 births 187.

The birth-rate was 38·7 as compared with 36·1 in 1897. The death-rate was 1·5 higher than last year, while the zymotic diseases gave a rate reduced by 0·41, and the proportion of infant deaths to births was 187 against 192. Whooping cough and diarrhoea, with 17 and 15 deaths respectively, gave rise to a considerable number of attacks; measles only caused 1 fatality. Typhoid fever was the most prevalent of the notifiable diseases, 49 cases occurring, with 5 deaths. Twenty-two typhoid patients were removed to the Isolation Hospital, and all recovered, the average stay in hospital being $34\frac{1}{2}$ days. This disease was often associated with insanitary conditions either of the houses themselves or of their immediate surroundings. Scarlet fever gave rise to 31 cases 2 deaths, and a difficulty was experienced in persuading patients to make use of the Isolation Hospital. The other infectious diseases were — diphtheria with 3 cases 2 deaths, croup 4 deaths, typhus fever 2 cases, puerperal fever 2 cases, and erysipelas 31 cases.

Water Supply continues “good and constant.”

Sewerage, Scavenging, &c.—The Ribble Joint Committee are not entirely satisfied with the effluent from the sewage works. Sewers are said to be “well flushed and cleansed.” Scavenging is attended to by the Authority, with the exception of a small portion of the district let to contractors.

Sanitary Inspection.—Certain property certified as in a condition dangerous to health was put right after legal proceedings had been instituted. Three insanitary houses were demolished. Many defective ashpits underwent reconstruction, and several back yards and passages were paved and flagged. Bakehouses and slaughter-houses, as well as dairies and cowsheds, are periodically inspected. The cowsheds, described as in a fair condition, might be improved by better ventilation. The Regulations fix the amount of air-space required per cow at 500 cubic feet. The closet accommodation at one of the mills was insufficient, and 12 additional closets were erected. Disinfection of 31 houses took place after infectious disease; the hospital disinfector was used for stoving bedding and clothing. The Inspector issued 78 notices, and secured the abatement of 312 nuisances. “Frequent” smoke observations were taken, but a time limit has not been fixed.

Prescot.—(Area in acres, 304; Estimated Population, 8,000).

—*Medical Officer of Health*, EGERTON F. HALL, M.D.; *Salary*, £25.—Birth-rate 36·0, death-rate 17·0, zymotic rate 2·62, death-rate from phthisis 0·62, and from respiratory diseases 2·12 per 1,000 of population; rate of deaths under one year to 1,000 births 184.

The birth and death rates show a decrease of 5·8 and 1·4 per 1,000 respectively, as compared with 1897; the zymotic, phthisis, and respiratory rates are more favourable, but the proportion of infant deaths to births rose considerably. Scarlet fever prevailed extensively, 99 cases with 7 deaths being reported. In July all the schools were closed for seven weeks, but this did not stop the spread, and at the end of the year the

disease was still rife. Typhoid fever gave rise to 10 cases, 2 deaths, and diphtheria caused 5 cases of illness. Eight deaths were ascribed to whooping cough, and 3 to diarrhoea. One bed is reserved at the Whiston Hospital for the use of this district, but only two patients were treated there—1 scarlet fever and 1 typhoid fever.

Sewerage, Scavenging, &c.—To deal with the increased volume of sewage three new tanks are in course of construction. Scavenging is regularly attended to by the Authority.

Sanitary Inspection.—Several houses in Sewell Street, Sludge Row, and in courts off Houghton Street have been demolished, and property has been improved in Kemble Street and Ecclestone Street. Bakehouses and slaughter-houses are regularly inspected, and said to be fairly satisfactory. Attention is paid to dairies and cowsheds, but the bye-laws in force do not secure in shippens modern requirements, not one of them having the requisite amount of air-space. Details of the Inspector's work are not given.

Prestwich.—(Area in acres, 3,171; Estimated Population, 9,290). *Medical Officer of Health*, FRED STEPHENSON, L.R.C.P.E.; *Salary*, £30 (no claim). Birth-rate 22·6, death-rate 13·7, zymotic rate 1·29, death-rate from phthisis 1·07, and from respiratory diseases 2·26 per 1,000 of population; rate of deaths under one year to 1,000 births 166.

The vital statistics under review, with the exception of the phthisis and infant rates, bear favourable comparison with those of 1897. The general death-rate was reduced 2·0, and the zymotic rate 0·65 per 1,000. Measles and diarrhoea each caused 4 deaths. Scarlet fever, of a mild type, was present during almost the whole of the year, 13 cases and 4 deaths occurring; of 31 cases removed to the Monsall Fever Hospital belonging to the Manchester Corporation 3 terminated fatally. Diphtheria gave rise to 5 cases, and 2 were removed to hospital. Four

cases were ascribed to typhoid fever, and a similar number to erysipelas. Arrangements have been made for bacteriological examinations in suspected cases of diphtheria and typhoid fever. Dr. Stephenson believes that it would be advantageous if phthisis were added to the list of notifiable diseases.

Water Supply.—The villages of Prestwich, Rooden Lane, and Rainsough are supplied from the mains of the Corporations of Manchester and Bury. The water from Bury is often very dirty, but is to be improved in the near future. Sinister Lane Village obtains good water from Heywood.

Sewerage, Scavenging, &c.—Sewage is treated by precipitation with aluminoferric. The filters are said to be inadequate to deal efficiently with the volume of sewage. Manholes are at times offensive, and more frequent flushing is required. Scavenging gives satisfaction.

Sanitary Inspection.—Bakehouses and slaughter-houses comply with the bye-laws, and factories and workshops are in good order. The cowsheds (24), described as “only in fair condition,” are visited occasionally. Regulations are in force, but the amount of air-space required per cow is not stated. The Inspector has not been able to get much systematic work done, owing probably to other duties being put upon him. He served 115 notices, and secured the abatement of 221 nuisances. Twenty-four smoke observations were taken.

Radcliffe.—(Area in acres, 3,110; Estimated Population, 26,000).—*Medical Officer of Health*, WILLIAM SELLERS, M.D. (Lond.), D.P.H.; *Salary*, £45 (no claim).—Birth-rate 28·0, death-rate 16·4, zymotic rate 2·5, death-rate from phthisis 0·84, and from respiratory diseases 3·26 per 1,000 of population; rate of deaths under one year to 1,000 births 171.

The population of this district has, apparently, been over-estimated, and is now reduced from 26,500, in 1897, to 26,000.

The birth-rate was 0·3 per 1,000 in excess of last year's rate, and the death-rate and zymotic rate were reduced 0·6 and 0·5 respectively. The phthisis and respiratory rates advanced, but the infant rate compares favourably with the average of the previous three years. Diarrhoea proved unusually fatal in the late summer and autumn, and occasioned 50 deaths. Of these no fewer than 43 were of children under five years of age. Hand-bills were distributed pointing out the precautions to be taken. Measles was credited with 2 deaths, and croup 4. Scarlet fever of a severe character broke out in the early part of the year, and of 39 cases notified 7 proved fatal, or a case mortality of 17·9 per cent. Dr. Sellers believes that the provision of hospital accommodation, together with efficient disinfecting apparatus, would do much to prevent a future epidemic proving so disastrous to the community. Typhoid and continued fever contributed 39 cases, and 5 deaths took place. The privy midden nuisance was associated with this disease, and the Medical Officer of Health would be pleased to see these offensive structures abolished and the water-carriage system substituted. Diphtheria was responsible for 10 cases, 1 death; membranous croup 6 cases, puerperal fever 2 cases, and erysipelas 17 cases. Dr. Sellers suggests that the latter ailment might be dropped out of the list of notifiable diseases. The Joint Hospital scheme is in progress.

Water Supply.—Numerous complaints have been made respecting the dirty condition of the water supplied by the Bury Corporation.

Sewerage, Scavenging, &c.—The sewage works are being extended. The sewage from the Stand Lane portion of the district, which at one time was treated at the works, has been diverted into the river, but the Mersey and Irwell Joint Committee has ordered the same to be re-connected. Scavenging as performed by the Authority, is "tolerably satisfactory."

Sanitary Inspection. Bakehouses, slaughter-houses, lodging-houses, offensive trades, factories, and workshops

have been under supervision and found to comply generally with sanitary requirements. Sixty-four canal boats were examined, 9 infringements of the Act being discovered. Dairies, cowsheds, and milk-shops are periodically inspected, but the condition of the cowsheds is not satisfactory, many being deficient as to light, ventilation, and water supply. Dairy, &c., Regulations are under the consideration of the Council. The Inspector (Mr. Pearson) reports on the abatement of 1,041 nuisances, including 358 gully traps affixed, 240 drains cleaned and repaired, 198 ashpits covered and concreted, &c. One hundred and twenty-four smoke observations were taken without legal proceedings being resorted to. Only 7 houses were disinfected after infectious disease.

Rainford.—(Area in acres, 5,872; Estimated Population, 3,769).—*Medical Officer of Health*, FRANK PROSSER, M.B.; *Salary*, £20.—Birth-rate 23·3, death-rate 16·7, zymotic rate 0·53, death-rate from phthisis 2·12, and from respiratory diseases 3·18 per 1,000 of population; rate of deaths under one year to 1,000 births 102.

The birth-rate of this district has been steadily decreasing during the last six years, and is 4·0 below the rate recorded in 1897. The general death-rate increased 2·3, but the zymotic and infant rates show a satisfactory reduction. The only zymotic deaths were ascribed to whooping cough and diarrhoea, 1 each. Scarlet fever caused 11 cases in the early part of the year, and typhoid fever—associated with filthy cesspools and insanitary surroundings—gave rise to 17 attacks. A cottage, with 4 beds, is set apart for the isolation of infectious cases, but it was not used during the year. No proper disinfecting apparatus is available.

Water Supply.—A scheme has been commenced whereby every householder in this scattered district, with a few exceptions, will be supplied with pure water.

Sewerage, Scavenging, &c.—The objectionable cesspool system is in vogue, and the scavenging has to be done by the householders. The Authority ought to undertake the scavenging, and introduce a suitable system of drainage.

Sanitary Inspection.—House-to-house inspection has been carried out, with the result that many sanitary errors were discovered and remedied. Bakehouses and slaughter-houses are well conducted, but one of the lodging-houses is not as clean and well ventilated as it should be. Dairies and cow-sheds receive "close attention" and are "well kept," but the Council, unfortunately, have not yet adopted Regulations. The factories and workshops examined were satisfactory. The Inspector secured the abatement of 16 nuisances after serving the usual notices.

Ramsbottom.—(Area in acres, 6,325; Estimated Population, 17,445). *Medical Officer of Health*, WILLIAM DEANS, M.B.; *Salary*, £60.—Birth-rate 21·3, death-rate 13·1, zymotic rate 1·08, death-rate from phthisis 1·26, and from respiratory diseases 2·69 per 1,000 of population; rate of deaths under one year to 1,000 births 125.

The report submitted by Dr. Deans is, on the whole, favourable. The death-rate was fractionally lower than in the previous year, and the zymotic, phthisis, respiratory, and infant rates were also reduced. Of the 19 zymotic deaths 12 were due to diarrhoea, 6 to measles, and 1 to scarlet fever. In the early part of the year measles assumed serious proportions in West Ward, and it was considered advisable to close the school in Dundee Lane. Scarlet fever gave rise to 55 cases; during the early months of the year the disease occurred in sporadic form, but in July it assumed epidemic proportions, principally in East Ward and the part of North Ward adjoining. It was found necessary to close the school in the affected district for a period of three weeks—this action checked materially the outbreak, as shewn by the number of cases recorded during

the succeeding months. Only 3 cases of enteric fever were reported, and in each house some defect in the drainage was discovered. The other notifications were—diphtheria 2, croup 2, puerperal fever 1, and erysipelas 8. A Joint Isolation Hospital scheme is in progress.

Water Supply, obtained from the Bury Corporation, has again given rise to complaint owing to the large quantity of suspended matter. One sample taken showed the existence of 10·4 grains of solids per gallon. The sources of private supplies have received much attention; that of Lammy Bank was shewn to be highly polluted by sewage and excrementitious matter.

Sewerage, Scavenging, &c.—Nearly 6,000 yards of sewers have been completed, and the treatment of the sewage will be commenced at an early date. The remainder of the scheme should be proceeded with without any further delay, so that the whole of the district may be efficiently drained, especially in North and East Wards, where the drainage is most unsatisfactory. In Central Ward the scavenging is now done by the Council's men, and is a decided improvement on the contractor's work in the other wards. The system of refuse disposal on tips gives rise to much dissatisfaction, which would be obviated by the provision of a destructor.

Sanitary Inspection.—One cellar dwelling and one back-to-back house were condemned. In Victoria Street 20 back yards were re-formed and flagged, but a large number of insanitary yards still exist. Lodging-houses, bakehouses, factories and workshops received attention, and several improvements were effected. Slaughter-houses are fairly well kept, but the structural arrangements do not satisfy the demands of sanitation. Dairies, cowsheds, and milk-shops are subject to Regulations, and properly conducted. The Inspector (Mr. Haworth) gives details of the sanitary work carried out, including 101 water-closets substituted for privies, 31 privies

reconstructed or repaired, 14 cesspools abolished, 120 new water-closets erected, 172 house drains repaired, &c. Altogether 410 nuisances in connection with 622 houses were abated. It was necessary to issue 156 preliminary and 64 legal notices, and proceedings before the magistrates were instituted in 2 cases. Eleven smoke observations were taken, and 72 houses and 2 schools disinfected.

Rawtenstall Borough.—(Area in acres, 9,528; Estimated Population, 30,500).—*Medical Officer of Health*, JAMES McNAUGHT, M.D.; *Salary*, £110.—Birth-rate 26·5, death-rate 16·7, zymotic rate 1·14, death-rate from phthisis 1·11, and from respiratory diseases 3·4 per 1,000 of population; rate of deaths under one year to 1,000 births 156.

As compared with last year the birth-rate was fractionally lower, the death-rate showing a reduction of 2·1 per 1,000. The zymotic rate declined 0·82, and the phthisis, respiratory, and infant rates were more favourable. Measles broke out in April, and the cases in the Waterfoot Board School were so numerous that it was necessary to close the infant school. Many cases also occurred in Piercy School, which, by being excluded, allowed the spread of the disease to be arrested without having recourse to complete closure. A few cases occurred in May, but in June the epidemic had spent itself. Fortunately only 3 deaths took place, against 22 in 1897, and 24 in 1896. Diarrhoea was the cause of 18 deaths—12 in September—and whooping cough terminated fatally in 4 instances. Scarlet fever gave rise to 82 cases, with 5 deaths, against 115 cases in 1897, 97 in 1896, and 225 in 1895. The disease was most prevalent in November and December, chiefly among children attending Clough Fold and Newchurch Schools. Dr. McNaught caused the infant class of the latter school to be closed for a fortnight, and no further case was reported among children attending there. He also recommended that all children from houses infected with scarlet fever be excluded

from school for a period of ten weeks. School authorities might do much to assist the sanitary officials in their efforts to restrain such diseases as scarlet fever, measles, and whooping cough, and it is, to say the least, unfortunate that such assistance has not always been rendered. Typhoid fever was responsible for 16 cases, 2 deaths. In 10 of the cases bacteriological tests were made; of these 5 were negative and 5 affirmative, and the subsequent course of the disease completely coincided with the bacterial test. In two of the houses affected the water supply from a local source was polluted, and in another case the water was suspicious. One case of typhoid fever was distinctly traceable to the emptying of an old privy-midden. Diphtheria caused 13 cases and 3 deaths; membranous croup 10 cases, 11 deaths; erysipelas 54 cases, 2 deaths; and puerperal fever 4 cases, 2 deaths. Dr. McNaught draws attention to the now recognised infectious nature of phthisis, and recommends disinfection of the houses where a death has taken place from this cause. The borough possesses a hospital for small-pox cases, but is unprovided with accommodation for the isolation of ordinary infectious diseases. An attempt to get the neighbouring boroughs to combine for hospital purposes proved abortive. The steam disinfecter has done good work.

Water Supply. obtained from the Bury Corporation, has again been unsatisfactory. The Town Council intend applying for powers to supply themselves, and a Bill is already lodged in Parliament.

Sewerage, Scavenging, &c.—The joint outfall works have now been put into operation, but very slow progress has been made in coupling up the houses with the intercepting sewers. Out of over 5,000 houses in the borough only from 1,200 to 1,500 have been connected. Scavenging is undertaken by the Corporation. Many large ashpits remain as a source of danger to health. The allowance made by the Authority towards the cost of converting pail and other closets to the water-carriage system has been largely taken advantage of.

Sanitary Inspection.—Bakehouses and lodging-houses were examined and found to be in accordance with the bye-laws with the exception of one bakehouse; this had a door communicating with an imperfectly ventilated stable. Careful attention has been given to cowsheds, but, unfortunately, many of them are defective in construction, ventilation, cubic space, and in general cleanliness. Factories and workshops are periodically examined, and a number of the sanitary conveniences have been re-arranged and added to. Slaughter-houses were regularly visited and found in good order. The Inspector (Mr. Rawlins) gives details of 428 nuisances, which required the service of 223 notices, and in 4 instances it was necessary to institute legal proceedings. Thirty-seven smoke observations were taken, 76 houses and 2 schools disinfected, &c.

Reddish.—(Area in acres, 1,541; Estimated Population, 8,100).—*Medical Officer of Health*, T. HANSON SMITH, L.R.C.P.E.; *Salary*, £40. — Birth-rate 26·4, death-rate 13·0, zymotic rate 2·09, death-rate from phthisis 0·86, and from respiratory diseases 2·46 per 1,000 of population; rate of deaths under one year to 1,000 births 126.

The statistics of mortality show a general improvement as compared with the preceding year; the death-rate was reduced by 8·1 per 1,000, the zymotic rate by 4·41, and the proportion of infant deaths to 1,000 births was 126 against 196. Measles gave rise to some trouble in North Reddish in the middle of the year, but only one death was recorded. Diarrhoea prevailed extensively in September, causing 13 fatalities. Ten cases of scarlet fever of a mild character occurred chiefly in North Reddish, and 15 cases 2 deaths arose from typhoid fever in the neighbourhood of Mid and North Reddish. Diphtheria and erysipelas each caused 6 attacks. No hospital provision has yet been made, and the Council have to rely on the adjoining County Borough of Stockport for the disinfection of clothing, &c.

Water Supply is reported as good.

Sewerage, Scavenging, &c.—The pollution of the Black Brook by sewage has been reduced, but not altogether removed. The Council have given instructions for plans to be prepared for an additional tank and filters at the sewage works. Scavenging is in the hands of the Authority, and much has been done to improve the main thoroughfares, but the back streets and yards of dwellings require greater attention.

Sanitary Inspection.—Bakehouses (17) are inspected regularly, and found clean and well kept. The 23 cowsheds in the district receive attention, and the Council, recognising their responsibility in this matter, are enforcing the Regulations adopted in 1885. Factories and workshops came under observation, and in one large factory the closet accommodation has been entirely remodelled. The Inspector (Mr. Ludlow) served 49 notices, all of which were complied with. He secured the abatement of 98 nuisances, including, privies and ashpits repaired or reconstructed 85, drains opened, cleaned, or repaired 10, repairs to premises, &c., 3. Twenty-six houses were disinfected after infectious diseases. The Council have at last adopted a time limit of ten minutes in the hour for the emission of black smoke.

Rishton.—(Area in acres, 2,981; Estimated Population, 8,000).

Medical Officer of Health, JOHN BARR, M.B.; *Salary*, £20.

—Birth-rate 24·8, death-rate 13·5, zymotic rate 2·37, death-rate from phthisis 0·75, and from respiratory diseases 1·25 per 1,000 of population; rate of deaths under one year to 1,000 births 155.

The general death-rate was 3·8 per 1,000 in excess of last year's exceptionally low rate, and the proportion of infant deaths to births rose from 124 to 155. Measles was somewhat

prevalent during the last two months of the year and caused 5 deaths; the other zymotic deaths were ascribed to diarrhoea 8, enteric and continued fever 6. Scarlet fever of a mild type gave rise to 26 attacks, but no death occurred. Typhoid and continued fevers, with 35 and 17 cases respectively, caused much trouble during the latter half of the year; the Medical Officer of Health attributes some of the cases to the poisonous gases accumulating in the drains in the dry weather through insufficient flushing. The other infectious cases were—diphtheria 8, croup 5, erysipelas 12, and puerperal fever 5, but no deaths resulted. The district is not provided with any hospital accommodation, and there is no proper disinfecting apparatus.

Water Supply.—“The water has contained a large amount of green filamentous material of an organic nature” caused through want of filtration. New filter beds are in preparation, but the progress seems unnecessarily slow.

Sewerage, Scavenging, &c.—Sewage is treated by precipitation and filtration. The Mersey and Irwell Joint Committee have complained of an unsatisfactory tank effluent being sent on to the irrigation area; this is due to imperfect precipitating arrangements and to the lack of settlement capacity in the precipitation tank. Scavenging is “regularly and properly attended to” by contract. A serious nuisance was caused by the Blackburn Corporation refuse tip at Norden, but on attention being drawn to the matter steps were taken to abate the nuisance.

Sanitary Inspection.—The district has been inspected at frequent intervals. Bakehouses and slaughter-houses are in good condition, and dairies and cowsheds comply with the Regulations; the amount of air-space required per cow is not defined. The workshops visited were well ventilated, and there was no overcrowding. The Inspector issued 33 notices, and secured the abatement of a like number of nuisances.

Royton.—(Area in acres, 2,112; Estimated Population, 14,800).—*Medical Officer of Health*, RALPH YOUNG, M.D.; *Salary*, £50.—Birth-rate 25·2, death-rate 16·4, zymotic rate 2·83, death-rate from phthisis 0·74, and from respiratory diseases 3·64 per 1,000 of population; rate of deaths under one year to 1,000 births 133.

The statistics, generally, do not vary much from the preceding year. The birth-rate, which has been steadily declining during the last four years, was reduced 2·2, while the death-rate gave an increase of 0·3 per 1,000. The zymotic rate rose somewhat, but the infant mortality slightly diminished. The increase in the zymotic rate was due to measles, which caused 16 deaths, diarrhœa 18 deaths, and whooping cough 3 deaths. Measles in the early part of the year spread epidemically, but the prompt action of the Authority in closing all the schools, together with the ready co-operation of the School Board officials, proved effectual in bringing the epidemic to a speedy termination. Fifty-five cases of infectious disease were reported, chiefly in Haggate and Dogford Wards. In 1897, 93 cases were notified, 105 in 1896, and 180 in 1895. Scarlet fever was responsible for 23 cases, most of which occurred in old property in the centre of the town, 2 deaths resulted. Typhoid fever, in several instances associated with sanitary defects, was the cause of 11 cases and 2 deaths; erysipelas caused 18 cases, 1 death; diphtheria 1 case, 1 death; croup 1 case, and puerperal fever 2 cases. The Council have made arrangements for bacteriological assistance in doubtful cases of diphtheria and enteric fever. Hospital accommodation is said to be available at Oldham, but only one patient, suffering from typhoid fever, was removed. The Joint Small-pox Hospital kept in readiness was not required.

Water Supply is said to be good.

Sewerage, Scavenging, &c.—The Local Government Board has sanctioned borrowing powers for additional sewers and works at the outfall, on the understanding that five acres of

land are to be used for filtration. Scavenging and removal of nightsoil is done by the Authority, but the staff appears to be insufficient. Refuse is dealt with at the destructor and a portion is tipped.

Sanitary Inspection.—Inspection of insanitary dwellings in Mill Street and Downing Street resulted in the closure of four houses condemned as unfit for human habitation, and the improvement of others. Bakehouses, slaughter-houses, and lodging-houses are kept clean and orderly, and the same may be said of the dairies, cowsheds, and milk-shops. Dairy, &c., Regulations, have recently been adopted, but not yet received the sanction of the Local Government Board. Factories and workshops were examined: in 36 the arrangements comply with sanitary requirements, but in 6 others improvements are necessary. The Inspector gives details of 105 nuisances, which were remedied, viz., defective, untrapped, and blocked drains 71, defective closets, urinals, and cesspools 12, insufficient closet accommodation 6, overcrowding and dirty houses 2, and 14 of a miscellaneous character. A vigorous crusade has again been carried on by a private individual against smoke producers.

St. Annes-on-the-Sea. (Area in acres, 3,212; Estimated Population, 5,340). —*Medical Officer of Health*, FRED. BOOTH, M.D.; *Salary*, £40.—Birth-rate 18·3, death-rate 9·3, zymotic rate 0·18, death-rate from phthisis 0·74, and from respiratory diseases 1·49 per 1,000 of population; rate of deaths under one year to 1,000 births 153.

The death-rate is identical with last year's rate, and corresponds closely with the average of the preceding 9 years. The phthisis, respiratory, and infant rates are somewhat lower than in 1897. Measles became prevalent during the last three months of the year, and the Council ordered the closing of the Church and Catholic Schools from October 24th to December 5th—fortunately only one death occurred. Fifteen cases of

infectious disease were notified, viz., scarlet fever 7, typhoid fever 7, and erysipelas 1. With the exception of 4 cases of scarlet fever, which were sent to the Blackpool Infectious Hospital, all were treated at home, the disinfection in most instances being carried out by the Inspector. Some slight progress has been made by the Joint Hospital Committee, as shown by the purchase of a site near Moss Side.

Water Supply.—In the summer the water often contains an amount of peaty matter in suspension, which gives it a brownish colour and earthy taste, and at times it contains some of the larger animalculæ, proving that it is insufficiently filtered.

Sewerage, Scavenging, &c.—Sewers have been properly flushed and cleansed. Several new mains were laid, and the scheme for draining the north-western portion of the district has received the sanction of the Local Government Board. Since May, scavenging has been undertaken by the Authority, and is much better done than formerly, when in the hands of contractors. The difficulty experienced in disposing of refuse will shortly be overcome by the erection of a destructor, for which land has been secured and tender accepted.

Sanitary Inspection.—Fair progress has been made in sanitary matters, but there is still room for improvement. Dr. Booth again draws the attention of the Council to the fact that there are no less than 296 “disease-producing abominations” in the shape of privy-middens, 25 per cent. of which are at a less distance from dwellings than allowed by the bye-laws. Slaughter-houses, bakehouses, &c., come under observation, but the former remain in the same condition as reported last year, namely, unsuitable both in structure, locality, and drainage. A public abattoir, however, is about to be erected. Dairies and cowsheds are inspected, but Regulations have not yet been adopted. The Inspector had only occasion to serve 3 notices.

Skelmersdale—Area in acres, 1,941; Estimated Population, 6,800).—*Medical Officer of Health*, GEORGE MORRIS, M.R.C.S.; *Salary* £30; Birth-rate 31·0, death-rate 19·5, zymotic rate 1·17, death-rate from phthisis 1·61, and from respiratory diseases 7·05 per 1,000 of population; rate of deaths under one year to 1,000 births 213.

The population is estimated at 400 less than in 1897, owing to emigration from the district. The birth and death rates show a decrease of 6·3 and 0·5 per 1,000 respectively as compared with last year, but the zymotic rate has more than doubled, and the proportion of deaths of infants under one year to 1,000 births rose from 122 to the excessive rate of 213. The respiratory rate is again exceptionally high—equal to 7·05 per 1,000 of the population, or 36 per cent. of the total deaths. In the early part of the year an outbreak of measles occurred, and in April and May whooping cough was very prevalent. One death was recorded from each of these diseases, and diarrhoea caused 3 deaths. The other deaths from infectious diseases were due to, scarlet fever 2, and diphtheria 1. About 12 cases of scarlet fever came to the knowledge of the Medical Officer of Health, but as the Infectious Disease (Notification) Act is not in force, it is impossible to tell the amount of infectious sickness in the district. The Cottage Hospital (4 beds) was not used during the year. No disinfecting apparatus is available.

Water Supply described as ample and good; Dr. Morris has warned the Council against the laying of lead pipes.

Sewerage, Scavenging, &c. The effluent from the outfall works appears generally satisfactory. Periodical flushing of the drains and sewers is recommended. Scavenging appears to be efficiently done by contract.

Sanitary Inspection.—Inspection of the district revealed many defective and blocked drains, and these were put in

proper order. A number of old and objectionable privy-middens remain and require immediate attention. The keeping of pigs and fowls in close proximity to dwelling-houses gave rise to complaints. Bakehouses, slaughter-houses, dairies, and cowsheds are periodically inspected, and said to be in good condition. The Inspector reports the service of 80 notices.

Southport Borough.—(Area in acres, 7,526; Estimated Population, 49,678).—*Medical Officer of Health*, HENRY H. VERNON, M.D.; *Salary*, £525.—Birth-rate 19·7, death-rate 13·2, zymotic rate 0·78, death-rate from phthisis 1·2, and from respiratory diseases 2·17 per 1,000 of population; rate of deaths under one year to 1,000 births 133.

In this borough there is a preponderance of 9,008 females over males, and a deficiency of 2,879 children under 15 years of age in the population as compared with an English population of the same total at all ages taken together. Dr. Vernon states that this deficiency in child population does not apply in equal proportions to every district within the borough, for in the rural wards there is a plethora of children, while other wards are denuded of children. The difference in the age distribution and occupation accounts for a large variation of rates in rural as compared with the urban wards; for instance, the birth and death rates of the former were 44·18 and 16·75 respectively against a birth-rate of 4·44 and a death-rate of 10·45 in the urban East Ward. The total death-rate for the whole borough was 14·49 or 2·06 less than in 1897. After deducting the deaths of 95 “moribund visitors,” or persons whose average duration of life in Southport was 66·2 days from the date of arrival, and allowing for other corrections, the net local rate is estimated at 13·28. The zymotic rate was low, corresponding to 0·78 against 1·15 in the previous year, while the proportion of deaths of infants under one year to 1,000 births, equal to 133, shows a reduction of 43. The

notifiable diseases have diminished from 512 in 1896, 261 in 1897, to 185 in the year under review. The most prevalent of the infectious diseases were scarlet fever, which gave rise to 90 cases and 5 deaths, typhoid fever 56 cases and 6 deaths, measles 274 cases (ascertained) and 7 deaths, whooping cough 7 deaths, and diarrhoea 19. Dr. Vernon finds "non-notification a great stumbling block in dealing with both measles and whooping cough. It is utterly useless to inculcate segregation as long as these diseases are unknown to the law." The admissions to the Isolation Hospital included—typhoid fever 22, diphtheria 4, scarlet fever 60, measles 7, and erysipelas 2; total 95. The case mortality was 6.21 per cent. as compared with an approximate case mortality of 7.21 per cent. of the same diseases treated outside since notification has been in force.

Water Supply very good; the works and sources of supply of the Southport Water Company are periodically examined, and samples of the water taken for analysis.

Sewerage, Scavenging, &c.—The sewage continues to be discharged by gravitation into the estuary of the Ribble at the mouth of Crossens Channel. Temporary pumping plant is in course of erection to accelerate the flow. Scavenging is described as fairly well carried out by the Corporation officials. Refuse contaminated with excreta goes to farming land, and the remaining refuse is used to make occupation roads, fill up ditches, &c. Much of the refuse would be best disposed of by burning in suitable destructors.

Sanitary Inspection.—Bakehouses and slaughter-houses are carefully supervised and give satisfaction. Twelve consignments of fish and 5 of meat were destroyed, and in 1 case a hawkers was prosecuted for exposing unsound mackerel for sale in the public street, and fined 20s. and costs. A person was prosecuted for occupying a dwelling-house after the building had been declared unfit for human habitation, and

fined 20s. and costs and 10s. for each day the house was occupied after the expiration of the closure Order. The lodging-houses have been well conducted, but 3 offences against the bye-laws arose, and in 1 case the keeper was fined 1s. and costs; the other 2 cases were withdrawn on payment of costs. The dairies and cowsheds receive much attention, and the Regulations, which include the provision of 800 cubic feet of air-space per cow, are rigidly enforced. A cowkeeper was summoned for an offence against the Regulations, but the summons was withdrawn on the payment of costs. The Inspectors give a tabulated statement of a vast amount of work carried out in the sanitary department, necessitating the service of 956 notices. The nuisances abated by the Inspectors numbered 10,541, in addition to 1,841 which had to be reported to the Health Committee. The following defects also were remedied, viz. :—

Houses re-drained...	...	...	128
House drains unstopped	...	...	632
Midden-prives converted to w.c.'s	...	...	219
Wet ashpits converted into dry	...	...	148
Sundry structural nuisances abated	...	...	462
Total...	...	...	1,589

Standish-with-Langtree.—(Area in acres, 3,264; Estimated Population, 6,000).—*Medical Officer of Health*, J. H. WILSON, M.D.; *Salary*, £35.—Birth-rate 37·8, death-rate 15·3, zymotic rate 1·83, death-rate from phthisis 0·50, and from respiratory diseases 2·83 per 1,000 of population; rate of deaths under one year to 1,000 births 149.

The vital statistics are more favourable than in 1897. There was an increase in the birth-rate of 1·7 per 1,000, and a decrease in the death-rate of as much as 8·9; the zymotic rate declined 1·53, phthisis rate 0·67, respiratory rate 4·22, and the proportion of infant deaths to births was 149 against 227 last

year. Early in the year a sharp epidemic of measles appeared in the eastern district (Haigh), but only 1 death took place. On the recommendation of the Medical Officer of Health measles was placed on the list of notifiable diseases in July. Diarrhœa caused 2 deaths, and whooping cough 1. Scarlet fever gave rise to 28 cases and 2 deaths (24 in Lower Ground). The infection was conveyed from the neighbouring village of Crooke, and prevailed from August to December. Typhoid and continued fever contributed 23 cases, 4 deaths. Many of the typhoid cases owed their origin to the unpaved backyards and to the open and deep ashpits, allowing percolation into the surrounding subsoil, and the distribution of the germs of infection. The other diseases notified were—erysipelas 19 cases, measles 9, puerperal fever 4, diphtheria 2, and croup 1. The small-pox hospital was kept in readiness, but was not required. There is no hospital accommodation for ordinary infectious diseases, and the Council possess no proper disinfecting apparatus.

Water Supply is "good, soft, and never scarce."

Sewerage, Scavenging, &c.—The Inspector of the Ribble Joint Committee, in reporting on the sewage farms, says:—"the results show that either more careful distribution on the farm is necessary, or an increased filtration area." An additional coke breeze filter has been constructed during the year. Scavenging, undertaken by contract, is generally well carried out, but occasionally complaints arise through dilatoriness in emptying ashpits.

Sanitary Inspection.—Some dilapidated houses in Step Row were demolished, and the old property on the south side of the Grove was condemned as unfit for human habitation and closed. The condition of many houses on the Standish Estate was improved, but others still require attention. Lodging-houses, bakehouses, factories and workshops were found satisfactory. Slaughter-houses are well kept, but

situated in too close proximity to dwelling-houses. Cowsheds, with two exceptions, are in good order; the Regulations in force do not fix the amount of air space required per cow. The Inspector served 130 notices, and 121 were complied with.

Stretford.—Area in acres, 3,254; Estimated Population, 27,100. — *Medical Officer of Health*, W. J. HESLOP, F.R.C.S.E.; *Salary*, £150.—Birth-rate 20·9, death-rate 12·6, zymotic rate 1·36, death-rate from phthisis 1·10, and from respiratory diseases 1·91 per 1,000 of population; rate of deaths under one year to 1,000 births 128.

The addition to the rapidly increasing population of this district during the year is estimated at over 1,600. The vital statistics continue very satisfactory, and compare favourably with the averages of the county urban districts. The birth-rate was 20·9, against 21·5 in 1897. The death-rate, which again shows a reduction, is the lowest recorded during the last 30 years. The zymotic, phthisis, respiratory, and infant rates also fell somewhat. The death-rate in Longford Ward, with a density of population equal to 6·1 persons per acre, was 13·5; in Clifford Ward, 122·5 persons per acre, 11·4; and in Talbot Ward, 1·5 persons per acre, 9·0. The total notifications of infectious disease numbered 263, against 829 in the previous year. The reduction was due to measles—notifiable in this district—which gave rise to 161 cases against 727 in the previous year. Scarlet fever had a diminished prevalence, 44 cases being reported against 54 in 1897. From typhoid fever there were 16 cases, from diphtheria 11 cases, and from erysipelas 31 cases. It is pleasing to note that the schoolmasters rendered great assistance by promptly informing the officials of any suspected case of infectious disease breaking out in children attending school. Diarrhœa, with 23 deaths, was the most fatal of the zymotic diseases. Whooping cough gave rise to 6 deaths, measles 3, enteric fever 3, and scarlet

fever and diphtheria 1 each. The Monsall Hospital, belonging to the Manchester Corporation, was used for the isolation of 15 cases, viz., scarlet fever 10, enteric fever 3, and diphtheria 2, but as the arrangement between the Council and the Manchester Authorities has come to a termination an agreement has been entered into with the Salford Corporation, whereby 20 beds in the Ladywell Sanatorium are set aside for the reception of patients from this district. A steam disinfecter has recently been erected at the sanitary depôt. The Council defray the cost of bacteriological examinations of suspected cases of diphtheria and typhoid fever. During the year 7 cases of suspected diphtheria were examined and only in 1 case was the specific bacillus found, and of 9 cases of typhoid fever the examination confirmed the diagnosis in 5 of them. One case of each disease, not examined bacteriologically, was sent to hospital, and found afterwards not to be cases of typhoid or diphtheria. Had these cases been examined bacteriologically the cost of removal and maintenance in hospital—which was sufficient to cover the cost of the *whole* of the examinations—would not have been incurred. Active steps are being taken to educate the public *re* preventive measures in cases of phthisis.

Water Supply obtained chiefly from Manchester Corporation. Three wells were closed after examination proved water unfit for drinking purposes.

Sewerage, Scavenging, &c.—The effluent from the sewage works appears to give satisfaction. During the year 26 sewer ventilating shafts were erected. The testing of the drains of 728 old houses revealed 362 defects, and 197 defects were discovered in 586 new houses. Scavenging is satisfactorily performed by the Council at a cost of about £1,813. The refuse destructor is now completed.

Sanitary Inspection.—A few cases of overcrowding of tenements are receiving attention. The 28 bakehouses (18 of

which are cellar bakehouses) and the slaughter-houses (8) were regularly visited. Some of the cellar bakehouses require better ventilation, but the slaughter-houses are in a more satisfactory condition than formerly. Two cows and three sheep suffering from tuberculosis were condemned. Milk-shops, dairies, and cowsheds are subject to strict supervision, but Dr. Heslop considers that the present Regulations require revision. Workshops and laundries came under inspection, and the Medical Officer of Health is about to formulate some rules for the better regulation of these premises. The Inspector (Mr. Nuttall) gives full details of 1,681 nuisances, which received attention. Notices, numbering 178, relating to 263 houses were issued, and legal proceedings instituted in 6 instances. Privies (216) and ashpits (131) were replaced by more modern arrangements. Ninety-seven rooms and 18 schools were disinfected, and 528 articles stoved. The Inspector took 15 smoke observations.

Swinton and Pendlebury.—(Area in acres, 2,222; Estimated Population, 27,400).—*Medical Officer of Health*, SAMUEL HOSEGOOD, M.R.C.S. : *Salary*, £90.—Birth-rate 30·7, death-rate 16·6, zymotic rate 2·27, death-rate from phthisis 0·79, and from respiratory diseases 3·75 per 1,000 of population; rate of deaths under one year to 1,000 births 192.

The corrected death-rate averaged 16·6 against 16·8 in 1897. In Swinton the rate was 14·09, and in Pendlebury 19·6. East Ward had the highest rate, viz., 21·8, and South Ward the lowest, 12·2. The zymotic rate was somewhat reduced, and varied from 2·67 in West Ward to 1·36 in East Ward. The infant mortality also proved more favourable, but still remains high; in East and West Wards the proportion of deaths of infants under one year to 1,000 births was 218 and 208 respectively. Diarrhoea, with 38 deaths, proved the most fatal of the zymotic diseases, and alone gave rise to a

rate equal to 1.28 per 1,000. Dr. Hosegood attributes many of these fatalities to the injudicious feeding and improper management of children, and to the hot weather in September. Whooping cough was the cause of 15 deaths, and measles 2. The total cases of infectious disease amounted to 205 (69 in Swinton and 136 in Pendlebury). Typhoid fever, with 123 cases, was unusually prevalent; no less than 101 or 82 per cent. occurred in Pendlebury. Ten deaths resulted, of which 4 occurred in the Ladywell Sanatorium belonging to the Salford Corporation out of 25 cases removed. An exhaustive inquiry was conducted during the year by an Inspector of the Local Government Board *re* the continued existence of enteric fever; in his report he urges the Council to take steps to procure the abolition of the old privy-middens, and to substitute in their stead a proper system of excrement and refuse disposal, also to give attention to the proper paving of house yards and streets. Of the other infectious diseases scarlet fever was responsible for 36 cases 2 deaths, diphtheria 3 cases, croup and puerperal fever 1 case each, and erysipelas 41 cases. In addition to typhoid fever already mentioned, 10 cases of scarlet fever and 1 case of diphtheria were removed to the Ladywell Sanatorium.

Water Supply is obtained from the Manchester Corporation.

Sewerage, Scavenging, &c.—Sewage undergoes treatment by filtration and irrigation, and extra filters are about to be put down. The experiment of ventilating sewers by mill chimneys is likely to prove successful. Scavenging remains in the hands of contractors, and gives satisfaction.

Sanitary Inspection.—As a result of periodical inspections of the district many improvements have been effected in the condition of dwellings, in the paving of over 400 back yards, and alterations to some of the old privy-middens. Bakehouses and slaughter-houses are generally well attended to, and the workshops examined were satisfactory. Dairies, cowsheds,

and milk-shops receive attention, but the sanitary staff is not sufficient to give the necessary supervision to these places. The Inspector (Mr. Bleakley) gives details of 1,079 nuisances dealt with, 983 of which were abated. He served 344 notices, and instituted legal proceedings in 13 instances to enforce compliance with bye-laws relating to the paving of yards; in 10 cases the work was done as a result of summons, and the remaining 3 were fined. Sixty-six smoke observations were taken.

Trawden.—(Area in acres, 6,807; Estimated Population, 2,500).—*Medical Officer of Health*, J. J. IDESON, L.S.A. (Lond.); *Salary*, £20.—Birth-rate 32·8, death-rate 14·8, zymotic rate 2·40, death-rate from phthisis 1·60, and from respiratory diseases 3·20 per 1,000 of population; rate of deaths under one year to 1,000 births 170.

As compared with the previous year there was a fractional increase in the birth-rate, accompanied by a reduction in the death-rate equal to 0·4 per 1,000. The zymotic rate, owing to 5 deaths from diarrhoea, rose considerably, and the proportion of infant deaths to births was 170 against 87 in 1897. The phthisis and respiratory rates were also increased. Twelve cases of infectious disease came under notice, viz., scarlet fever 6, enteric fever 1, croup 2, and erysipelas 3.

Water Supply reported as good.

Sewerage, Scavenging, &c.—The effluent from the sewage works appears to have been of a satisfactory character, but the sewage from that portion of the district known as Cotton Tree still enters the river without treatment. Scavenging is undertaken by contract, and gives satisfaction.

Sanitary Inspection.—A considerable number of back-to-back houses exist, and are not in good repair. Many house-drains have, during the year, been connected with the main

sewer, but a considerable number still remain unconnected. Bakehouses and slaughter-houses give satisfaction, but the dairies and cowsheds are not under Regulation, and do not comply with sanitary requirements. Very meagre information is given of the sanitary work carried out.

Turton. (Area in acres, 17,322; Estimated Population, 12,662). *Medical Officer of Health*, JAMES ROBINSON, M.D., L.S.Sc.; *Salary*, £20 (no claim).--Birth-rate 24·2, death-rate 12·0, zymotic rate 1·64, death-rate from phthisis 1·27, and from respiratory diseases 2·70 per 1,000 of population; rate of deaths under one year to 1,000 births 143.

The boundary of Turton has been extended (30th Sept., 1898) under the Bolton, Turton, and Westhoughton Extension Act, 1898, the additions being Belmont, Harwood, and Edgworth, portions of the Bolton Rural District, representing an acreage of 12,379, and a population of 5,562. The mortality statistics are as under:—

	Birth-rate.	Death-rate.	Zymotic Rate.	Phthisis Rate.	Respiratory Rate.	Infant Rate.
Turton (original district) ...	24·0	11·8	0·42	1·12	2·53	140
Added area (3 months) ...	24·4	12·2	2·87	1·43	2·87	147
Whole district ..	24·2	12·0	1·64	1·27	2·70	143

Zymotic diseases accounted for 7 deaths, and were distributed as follows:—in Turton (old area) 1 death each from enteric fever, measles, and diarrhoea; Belmont, scarlet fever 2 deaths, diphtheria 1; Harwood 1 death from diarrhoea; Edgworth nil. Thirty-eight cases of infectious disease were notified, viz.:

	Turton (whole year)	Belmont (3 months),	Edgworth (3 months),	Harwood (3 months)
Scarlet fever...	9	8	—	—
Diphtheria ...	1	9	—	—
Erysipelas ...	2	—	1	—
Enteric fever...	6	2	—	—

The cases of scarlet fever in Turton have occurred at various periods in a sporadic form, "whilst at Behmont this disease and diphtheria have assumed epidemic form during the past two years, the continuance and spread of the diseases being mainly due to the free intercourse which has been permitted betwixt infected and non-infected houses." Dr. Robinson distributed a handbill in the village calling attention to this fact, and recommending certain precautions. Typhoid fever, both in Turton and Behmont, was not due to any common cause, the origin in the majority of cases being ascribed to defective closets, percolation of sewage, or defective drains. There is no hospital accommodation available, but the Council have the matter under consideration.

Water Supply is adequate, and on the whole fairly good and wholesome.

Sewerage, Scavenging, &c.—"The major portion of the district is efficiently sewered, and is working satisfactorily in those parts which are already connected with the system. Pending the completion of the sewage works at Bradshaw, the Harwood, Edgworth, and Bradshaw portions of the district are still unconnected." Scavenging is undertaken by the Authority.

Sanitary Inspection.—Insanitary conditions exist in the added area in connection with closet accommodation and disposal of refuse. A house-to-house visitation of these areas is being made, and this will no doubt result in a considerable improvement. Bakehouses and slaughter-houses are said to be in good order, and dairies and cowsheds "fairly satisfactory." Many structural alterations have been effected in several farms, both in the cowsheds and in the dairies. In some of the cowsheds, however, the air space averages little more than 300 cubic feet per animal. The Inspector reports on 23 nuisances abated, 19 privies and ashpits rebuilt, 19 waste-water closets erected, 9 houses disinfected, 2 smoke observations, &c.

Tyldesley-with-Shakerley.—(Area in acres, 2,489; Estimated Population, 14,500).—*Medical Officer of Health*, B. BLAKEMORE, M.R.C.S.; *Salary*, £40.—Birth-rate 34·9, death-rate 16·9, zymotic rate 3·31, death-rate from phthisis 0·75, and from respiratory diseases 3·03 per 1,000 of population; rate of deaths under one year to 1,000 births 177.

The birth-rate is fractionally higher than that recorded in 1897, and the death-rate shows an increase of 1·4 per 1,000, due to the number of fatalities from measles and diarrhœa, which also accounted for the rise in the zymotic rate and in the proportion of infant deaths to births. Diarrhœa was the cause of 18 deaths, against 8 recorded last year, and measles also contributed 18 deaths. The latter became epidemic in June, and it was necessary to resort to school closure. Typhoid fever, which during the past decade has annually given rise to much trouble, was again responsible for much sickness, 73 cases and 10 deaths being recorded. The constant recurrence of this disease led me to make an inspection of the district in November along with Dr. Blakemore, and in forwarding my report to the Council I recommended the periodical flushing of sewers and house drains, removal of several groups of unhealthy houses, and the reconstruction of the old privy-middens. Scarlet fever gave rise to 51 cases, 1 death; diphtheria 1 case, croup 3 cases, and erysipelas 21 cases. The Joint Hospital was used for the isolation of 59 patients—25 suffering from scarlet fever, and 34 from typhoid fever. In May a person was summoned for taking infected clothing to a pawnshop, and another person for carrying a child whilst desquamating from scarlet fever into a neighbour's house. In each case a penalty of 20s. and costs was inflicted.

Sewerage, Scavenging, &c.—The Mersey and Irwell Joint Committee had occasion to complain of the unsatisfactory character of the effluent from the sewage works, due to the fouling of the filters, and also that the sewage did not receive proper treatment during the night. The Council gave an

undertaking to treat the sewage continuously day and night. Scavenging is performed by the Authority, and is said to be satisfactory.

Sanitary Inspection.—Bakehouses and slaughter-houses are in fair condition. Dairies and cowsheds come under supervision, but Regulations under the Order of the Local Government Board have not yet been adopted. The drains of 2 farms have been relaid, and 3 others are under notice. Fifty-one water-closets were constructed in place of old middensteads. A butcher was sent to gaol for 14 days for preparing for food of man a carcase of a cow affected with general tuberculosis. Nuisances discovered, numbering 127, with 6 exceptions, have been abated. Eighty-three houses and several schools were fumigated.

Ulverston.—(Area in acres, 3,120; Population (Census 1891), 10,015). *Medical Officer of Health*, G. H. PATTERSON, M.R.C.S.; *Salary*, £90.—Birth-rate 26·2, death-rate 11·9, zymotic rate 0·09, death-rate from phthisis 1·19, and from respiratory diseases 2·39 per 1,000 of population; rate of deaths under one year to 1,000 births 68.

Excluding the deaths in the Workhouse belonging to outside districts, the corrected death-rate was equal to 11·9, or 4·0 per 1,000 below the corrected rate of 1897. The zymotic and infant rates were much below the average, the former being accounted for by 1 death from diarrhœa. Fifteen cases of infectious disease were notified, viz., scarlet fever 7, typhoid fever 5, and diphtheria 3. In a few instances examination of the infected premises revealed defects of sanitation which would be quite sufficient to give rise to disease. There is no hospital accommodation at present, but provision is being made.

Water Supply is abundant, and no complaints have arisen as to its quality.

Sewerage, Scavenging, &c.—"The sewers and drains are all working well, and the same may be said of the tanks and outfall at the sea-shore." Scavenging is undertaken by the Council in a "fairly satisfactory manner."

Sanitary Inspection. Lodging-houses do not altogether comply with the bye-laws, and slaughter-houses, although kept in fair order, are in too close proximity to dwelling-houses. Cowsheds and dairies have been inspected regularly, and Regulations are in force, but no stipulation is made as to the air-space in cowsheds. Frequent complaints were made of offensive odours given off during the operations of melting fat at the tallow chandlers in Back Lanes, and Dr. Patterson has suggested means to obviate this nuisance. Details of the Inspector's work are not supplied.

Upholland.—(Area in acres, 4,685; Estimated Population, 4,927). *Medical Officer of Health*, JOHN L. JOHNSTONE, M.R.C.S.; *Salary*, £40. —Birth-rate 29·0, death-rate 19·6, zymotic rate 3·04, death-rate from phthisis 1·01, and from respiratory diseases 5·88 per 1,000 of population; rate of deaths under one year to 1,000 births 202.

The vital statistics are this year calculated on an estimated population of 4,927, whilst in 1897 the rates were based on the Census population of 4,443. The birth-rate was 29·0, as compared with 41·3 per 1,000 in 1897, and 33·5 on a three years' average. The death-rate corresponded to 19·6 against 22·0 recorded last year. The zymotic and respiratory rates, and the proportion of infant deaths to births were very high, and compared unfavourably with previous years. Measles caused 6 deaths, and was so prevalent in the early part of the year that it necessitated the closure of Holland Moor Schools for six weeks, and Dig Moor Schools for one month. Whooping cough appeared in July and August, but only gave rise to 1 death; diarrhoea was responsible for 4 fatalities. Notifiable diseases caused 27 cases (against 94 in the preceding year), viz.,

scarlet fever 5, typhoid fever 4, diphtheria 13, erysipelas 3, and croup 2. The diphtheria cases occurred principally in Dig Moor and Hall Green, and the probable origin was an open drain behind the premises where the disease first exhibited itself. The drain was covered in, and as a further precaution Dig Moor Schools were closed. The Medical Officer of Health again refers to the difficulty of curtailing the spread of infectious disease owing to the district being unprovided with hospital accommodation and disinfecting apparatus.

Water Supply.—The water scheme has now been completed, and the benefits accruing from this are already apparent.

Sewerage, Scavenging, &c.—The arrangements for treating the sewage of the Tontine district are still unsatisfactory. Scavenging is “fairly” well carried out by the Authority.

Sanitary Inspection.—The neighbourhood of Alma Hill and Factory Row still remains in a wretched condition, and the Medical Officer of Health describes it as “an accumulation of all that is evil, and nothing that is good.” Bakehouses and slaughter-houses are well kept, but the same cannot be said of the lodging-houses. Dairies and cowsheds are inspected, although not under Regulations. The Inspector’s attention has been directed chiefly to the work of draining, opening choked drains, repairing ashpits and closets, &c. He served two notices.

Urmston.—(Area in acres. 992; Estimated Population, 6,800).—*Medical Officer of Health*, G. E. FRYER, M.R.C.S.; *Salary*, £25 (no claim).—Birth-rate 21·9, death-rate 12·6, zymotic rate 3·82, death-rate from phthisis 0·88, and from respiratory diseases 1·61 per 1,000 of population; rate of deaths under one year to 1,000 births 93.

The general death-rate (12·6) is 1·0 per 1,000 higher than in 1897, and the zymotic rate shows an increase equal to 1·73.

The phthisis rate advanced, but the respiratory and infant rates are more favourable. Diphtheria, with 13 deaths, was the most fatal of the zymotic diseases. Measles gave rise to 5 deaths, diarrhoea 1, and scarlet fever and whooping cough 2 each. Notification of 103 cases was received, against 35 in the preceding year. Diphtheria, in the early part of July, assumed an epidemic form, affecting almost entirely the scholars of the infants' department of the British School. Between the 4th and 19th of the month 33 cases were reported, and it was decided to close the school for 14 days; altogether 62 cases of diphtheria occurred in the district. Scarlet fever caused 26 attacks, enteric fever 13, and erysipelas 2. Arrangements have been made with Owens College for the bacteriological examination in suspected cases of diphtheria and enteric fever. The Council have a contract with Salford Corporation for the use of 5 beds at the Ladywell Sanatorium. Seventeen cases were removed for treatment, viz., diphtheria 10, scarlet fever 6, and enteric fever 1.

Water Supply is obtained chiefly from Manchester Corporation.

Sewerage, Scavenging, &c.—The sewage is treated at the Joint Sewage Farm. Flushing of sewers has been continued with good results. Numerous complaints were made concerning foul emanations from the Moss Side Sewage Farm situated in this district, and the matter is receiving attention. Scavenging is satisfactorily performed by contract.

Sanitary Inspection.—Slaughter-houses and bakehouses were inspected and found satisfactory. Dairies and cowsheds are under observation, but as the new bye-laws have not yet come into force the question of structural improvements in some of the shippens is in abeyance. The Inspector (Mr. Bland) gives details of 75 nuisances, to secure the abatement of which 73 notices were required. Twenty-eight privies were converted to water-closets, 79 houses and

one school received disinfection, and articles of clothing, bedding, &c., from infected houses were stoved at the Sanatorium.

Walton-le-Dale.—(Area in acres, 4,682; Estimated Population, 11,733).—*Medical Officer of Health*, R. TRIMBLE, M.D., D.P.H.; *Salary*, £50.—Birth-rate 29·9, death-rate 16·1, zymotic rate 1·7, death-rate from phthisis 1·1, and from respiratory diseases 2·64 per 1,000 of population; rate of deaths under one year to 1,000 births 150.

As compared with 1897 the birth and death rates show a reduction of 1·0 and 3·3 per 1,000 respectively, the zymotic rate declined 1·04, and the proportion of infant deaths to 1,000 births was 150 against 210. The phthisis and respiratory rates were fractionally higher. Diarrhœa caused 15 deaths, against 19 last year, and measles contributed 1 death. The notified cases of infectious disease amounted to 25, or 27 less than in the previous year. Typhoid fever was responsible for 11 cases, 4 deaths; scarlet fever 3 cases, diphtheria 2 cases, and erysipelas 9 cases. Bamber Bridge again monopolized a much greater number of cases in proportion to its population than any other township, and more than half the total zymotic deaths occurred here. Dr. Trimble believes that the continued prevalence of zymotic disease in this portion of the district is due to the filthy state of the soil, brought about by a sewage saturated condition anterior to the completion of the new sewage works, and in a lesser degree to the insanitary condition of unpaved back-yards. The Bradkirk Hospital was used for the isolation of one case of typhoid fever. More efficient hospital accommodation is required for this district, and the Council have failed to carry out the promise made to the County Council in August, 1895, in respect thereto.

Sewerage, Scavenging, &c.—Sewage is treated at the new works, but the effluent has not been entirely satisfactory. Scavenging, performed by contract, is said to be "fairly well" done.

Sanitary Inspection.—One house unfit for habitation—came under notice, and one case of overcrowding. Bake-houses and slaughter-houses are said to be “in good order.” Eighty-three closets were converted to the waste-water system. The Inspector served 168 notices for the abatement of nuisances, and 19 houses received disinfection after infectious disease.

Wardle.—(Area in acres, 3,300; Estimated Population, 4,150).
 —*Medical Officer of Health*, G. MacGILL, L.R.C.P.E.;
Salary, £40. —Birth-rate 21·6, death-rate 10·8, zymotic rate 0·24, death-rate from phthisis 0·18, and from respiratory diseases 1·44 per 1,000 of population; rate of deaths under one year to 1,000 births 88.

Excluding 168 deaths which took place in the Dearnley Workhouse, belonging to the adjoining County Borough of Rochdale, the death-rate was 10·8, or 4·0 per 1,000 below the recorded rate of 1897. The zymotic rate was reduced 2·19, and the rate of deaths under one year to 1,000 births declined from 107 to 88. The only zymotic death was due to diarrhœa. The Infectious Disease (Notification) Act is not yet in force, but there is a probability that it will shortly be adopted, and the provision of hospital accommodation has recently been under consideration. Four cases of enteric fever came to the knowledge of the Medical Officer of Health; in two the origin of the disease was attributed to the water supply becoming contaminated, and to the keeping of pigs too near dwellings.

Sewerage, Scavenging, &c. Sewage is treated by precipitation and filtration, and apparently gives satisfaction. Scavenging is undertaken by the Authority, the refuse being “tipped.”

Sanitary Inspection.—There are no bakehouses or lodging-houses in the district, and the slaughter-houses are well kept. Dairies and cowsheds are in good condition, and comply with

the Regulations. Forty notices were issued, respecting defective drains 12, removal of pigs 1, and the remainder for miscellaneous nuisances.

Warrington Borough.—(Area in acres, 3,115; Estimated Population, 62,770).—*Medical Officer of Health, Public Analyst, &c.*, JOHN H. GORNALL, M.R.C.S.; *Salary*, £400 (no claim).—Birth-rate 37·5, death-rate 17·8, zymotic rate 3·23, death-rate from phthisis 1·09, and from respiratory diseases 3·53 per 1,000 of population; rate of deaths under one year to 1,000 births 168.

The birth-rate shows an increase of 0·8 per 1,000 as compared with 1897, but 1·4 below the average of the 10 years 1888-97. The general death-rate corresponds to 17·8, against 19·5 in 1897, 18·6 in 1896, and 21·5 in 1895; the preceding decennium averaged 21·4. Howley Ward (24·5) and St. John's Ward (20·4) gave the highest rates, and Whitecross Ward (14·4) and St. Austin's Ward (13·4) the lowest. The zymotic rate rose 0·35, exceeding by 0·73 the preceding ten years average, and the infant mortality was less than in 1897, but above the mean of 1888-97. Measles, which prevailed at the end of last year, continued to spread during the first quarter, when 23 out of a total of 28 deaths for the year took place. As there were many cases associated with Bank Quay Infants' School, it was considered necessary to recommend its closure for a month. Diarrhoea occasioned 127 deaths, equal to a rate of 2·02 per 1,000, and caused more than half the deaths from all the other zymotic diseases. Eighty-seven of the fatalities occurred in infants under 1 year of age, and 32 in children between 1 and 5 years. Whooping cough was the cause of 19 deaths, puerperal fever 3, croup 4, and erysipelas 1. Under the Notification Act 187 certificates were received, against 135 in 1897, 188 in 1896, 344 in 1895, and 428 in 1894. During the first half of the year there was a remarkable absence of scarlet fever, as many as 18 weeks passed without

a single notified case : consequently, on several occasions the fever hospital was empty. From August, however, the disease became prevalent, but at the end of the year had somewhat declined. Of the 107 cases notified, 87 were removed to the hospital, 5 proving fatal, or 5·7 per cent.; of the remainder (20) treated at home 4 died, or 20 per cent. Typhoid fever was responsible for 41 cases, 14 deaths—the hospital was used for the isolation of 29 patients and 8 died, while of the 12 cases treated at home 6 proved fatal. Diphtheria caused 6 cases, and 2 were sent to the hospital; all the 6 persons attacked died. Membranous croup gave rise to 3 cases, puerperal fever 8, erysipelas 20, and ill-defined diseases 2. Altogether 122 patients were treated in hospital, and the cost of each patient was £9 2s. 4d.; the average cost of food per person per week was 6s. 1½d. Dr. Gornall says the iron hospital at Aikin Street is quite inadequate and unsuited for the treatment of patients.

Sewerage, Scavenging, &c.—The sewage is discharged into the River Mersey. The Corporation undertake the scavenging, and the refuse is burnt in the destructor.

Sanitary Inspection.—Dr. Gornall reports that 9 houses were closed by Magistrates' Orders until put in a proper state of repair. He laments the slow progress made in the paving of streets and passages, and gives a long list of the places requiring attention. Of 57 samples submitted for analysis four were adulterated, and a fine was inflicted in each case. The Inspector (Mr. Norman) reports on a large amount of work which received attention, including the periodical inspection of 96 bakehouses, 34 common lodging-houses, 101 houses let in lodgings, 86 milk-shops, 20 cowsheds, 27 slaughter-houses, 119 canal boats, &c. Complaints are again made as to the difficulty experienced in the inspection of meat, and in place of the existing slaughter-houses a public abattoir is recommended. Proceedings were taken in several instances against lodging-house keepers, and proprietors of bakehouses

and slaughter-houses for contravention of the bye-laws, and fines were inflicted in some cases. The dairies and cowsheds are subject to Regulations, but do not give satisfaction to the Medical Officer of Health. Factories and workshops, and premises where offensive trades are carried on were regularly visited. The Inspector seized and destroyed 2,613 lbs. of meat unfit for human food, and 7 pigs, smothered in transit, were also destroyed. For exposing for sale unsound meat the Health Committee inflicted fines to the amount of £14 1s. 0d. Details are given of 2,276 nuisances, of which 2,095 were abated after the service of 639 notices. One hundred and thirty-five smoke observations were taken, and 93 proved offences against the 91st section of the Public Health Act, 1875; four notices were served, and the Health Committee levied fines under the local bye-laws amounting to £3 10s. 6d. The steam disinfecter at the hospital was used for the disinfection of 2,413 articles of clothing, bedding, &c., and 152 houses were fumigated. Attention is again drawn to the insufficiency of the Inspectorial staff.

Waterloo-with-Seaforth.—(Area in acres, 1,524; Estimated Population, 23,058).—*Medical Officer of Health*, W. S. LIMRICK, L.R.C.P.E.; *Salary*, £75.—Birth-rate 26·1, death-rate 12·3, zymotic rate 1·86, death-rate from phthisis 1·12, and from respiratory diseases 2·03 per 1,000 of population; rate of deaths under one year to 1,000 births 159.

The statistics submitted are, upon the whole, satisfactory, and vary but slightly from those recorded last year. The birth-rate rose 1·0 per 1,000; the death-rate was exactly the same as in 1897, but the zymotic, phthisis, respiratory, and infant rates increased somewhat. Waterloo had a death-rate of 10·66, and Seaforth 13·67. Of the zymotic diseases, diarrhœa proved most fatal with 31 deaths; measles gave rise to 3 fatalities, and whooping cough 2. Notifications of 214 cases of infectious disease were received—in Waterloo 93

occurring in 75 houses, and in Seaforth 121 in 91 houses. Scarlet fever contributed 132 cases; most of these occurred in the latter half of the year and were of a mild form, only 1 death resulting. Typhoid fever caused 55 cases (42 in Seaforth) and 3 deaths; diphtheria 13 cases, 3 deaths; erysipelas 10 cases, croup 2, and puerperal fever 2. The Bootle Hospital was used for the isolation of 81 patients—54 scarlet fever, and 27 typhoid fever—at a total cost of £799 17s. 0d. A Washington Lyons steam disinfecter has been erected during the year.

Sewerage, Scavenging, &c.—The sewage is discharged into the sea. The smoke test was applied to 179 drains, and also to the drains of houses where diphtheria and typhoid fever existed. Scavenging is satisfactorily performed by contract.

Sanitary Inspection.—The house-to-house inspection has been continued; 975 houses were examined, resulting in one being closed as unfit for human habitation. Bakehouses have been kept in good order and considerably improved in regard to the paving of the floors, lighting, ventilation, and drainage. The Inspector (Mr. Spears) secured the abatement of 1,143 nuisances, which required the service of 429 preliminary and 73 legal notices; in one case a summons was issued. Forty-four privies were converted into w.c.'s, and 132 back-yards paved or flagged. The disinfecting apparatus was used 169 times for the disinfection of 1,916 articles of bedding, clothing, &c., and 188 rooms were fumigated.

Westhoughton.—(Area in acres, 5,554; Estimated Population, 12,713).—*Medical Officer of Health*, F. TYNDALL, L.R.C.P.(Lond.); *Salary*, £30.—Birth-rate 34·6, death-rate 15·2, zymotic rate 2·28, death-rate from phthisis 0·87, and from respiratory diseases 3·22 per 1,000 of population; rate of deaths under one year to 1,000 births 131.

Under the Bolton, Turton, and Westhoughton Extension Act, 1898, the area of Westhoughton has been increased by

the addition of a portion of Over Hulton representing 1,213 acres, and a population of 800, but as this was not effected until September 30th. the statistics are calculated upon the old population. With the exception of the phthisis rate, all the mortality statistics compare favourably with 1897. The death-rate was reduced 5·5 per 1,000, and the zymotic rate 0·74. Diarrhœa prevailed somewhat extensively in the autumn, and caused 14 deaths. Measles gave rise to 1 death, and whooping cough 3. Seventy cases of infectious disease were notified, viz., typhoid and continued fever 31 cases (9 deaths), scarlet fever 17 cases (2 deaths), erysipelas 14 cases, puerperal fever 5, croup 2, and diphtheria 1. In the absence of a fever hospital home isolation is enforced as far as practicable, but it is impossible to obtain effective isolation under present conditions. No disinfecting apparatus is available. A joint hospital scheme is under consideration.

Water Supply, of good quality, is obtained from the Bolton Corporation Waterworks.

Sewerage, Scavenging, &c.—The sewage undergoes treatment at works on Roger's Farm, Dog Hole Farm, and Marsh Brook Farm, and two cinder filters have been constructed during the year. An extension of 1,800 yards of sewerage has been completed in Leigh and Park Roads, and it is proposed to spend £5,000 on the improvements of the roads. Scavenging, performed by contract, gives satisfaction.

Sanitary Inspection.—Several dilapidated houses have been repaired and made habitable. Bakehouses, slaughter-houses, factories and workshops receive periodical inspection, and appear to be in good condition. Dairies and cowsheds are kept under observation, although not subject to Regulations. The old and unroofed ashpits steadily decrease; 51 were repaired and covered, and 11 entirely reconstructed. The Inspector served 41 notices and secured the abatement of 136 nuisances, viz., drains opened, cleaned, and repaired 41,

privies and ashpits repaired or reconstructed 52, new drains to premises 5, animals, so kept as to be a nuisance, removed 3, accumulations of refuse removed 3, new privies provided 11, ditches cleaned 6, offensive middensteads drained 15.

Whitefield.—(Area in acres, 1,398; Estimated Population, 6,329).—*Medical Officer of Health*, A. T. DOCHARD, M.B.; *Salary*, £15 (no claim).—Birth-rate 27·8, death-rate 16·7, zymotic rate 3·63, death-rate from phthisis 0·31, and from respiratory diseases 2·37 per 1,000 of population; rate of deaths under one year to 1,000 births 176.

The general death-rate is fractionally lower than last year, but the zymotic rate continues high, although reduced 0·52 per 1,000. The proportion of deaths of infants under one year to 1,000 births rose from 124 to 176. Diarrhœa caused 14 deaths, and whooping cough—prevalent at the end of the year—was responsible for 5 fatalities. Scarlet fever gave rise to 25 cases 1 death, enteric fever 3 cases 1 death, and diphtheria 9 cases 2 deaths. The joint hospital scheme has made some progress.

Sewerage, &c.—The improvements at the outfall have advanced considerably. The complaints made during the summer months of the offensive smells from the sewers induced the Council to discuss the question of ventilating and flushing, but as yet no effective measures have been taken.

Sanitary Inspection.—No information is given respecting the sanitary work carried out in this district. The annual report of a Medical Officer of Health should contain an account of the inquiries made as to the sanitary condition of his district, and also an account of the supervision exercised by him over places that the Authority have power to regulate, and as to the action taken in regard to dairies, cowsheds, and milk-shops, factories and workshops, &c.

Whitworth.—(Area in acres, 6,200; Estimated Population, 10,150).—*Medical Officer of Health*, ALEXANDER WELSH, M.D.; *Salary*, £40.—Birth-rate 24·1, death-rate 16·8, zymotic rate 0·98, death-rate from phthisis 1·87, and from respiratory diseases 3·44 per 1,000 of population; rate of deaths under one year to 1,000 births 122.

An increase of 1·4 in the birth-rate (as compared with 1897), was accompanied by a decrease in the death-rate equal to 0·8 per 1,000. The zymotic rate was reduced 0·60, and the proportion of infant deaths to births declined from 208 to 122. Measles, which prevailed extensively last year, was practically absent, and did not give rise to a single death, and diarrhœa and whooping cough only caused 1 death each. Scarlet fever, with 24 cases (2 deaths, both in Facit Ward), did not become so pronounced as in 1897, but typhoid fever was responsible for 12 cases, 4 deaths. Three of the fatalities took place in Facit Ward and one in Healey. The other cases of infectious disease notified were erysipelas 33, puerperal fever 3, diphtheria 2, and croup 2. Dr. Welsh considers that the notification of erysipelas is of “doubtful utility.” It is difficult to understand why “it has not been necessary to use the temporary hospital for any infectious case.” Disinfecting apparatus is not available.

Water Supply obtained chiefly from private wells.

Sewerage, Scavenging, &c.—Sewage is treated by precipitation and filtration. During the year over 300 house drains were connected to the main sewer. Scavenging is said to be satisfactorily performed by the Authority.

Sanitary Inspection.—Overcrowding of dwelling-houses prevails to some extent, and the Medical Officer of Health believes that this “is the most active agent in the propagation of phthisis and other infectious diseases.” Slaughter-houses, dairies, and cowsheds receive periodical inspection, and appear to be in good condition. Factory and workshop

examination takes place, and several works have had the privy accommodation remodelled. Apparently there were few nuisances requiring attention.

Widnes Borough —(Area in acres, 3,039; Estimated Population, 32,000.)—*Medical Officer of Health*, D. U. MacLENNAN, M.D.; *Salary*, £170.—Birth-rate 33·8, death-rate 16·8, zymotic rate 1·15, death-rate from phthisis 0·37, and from respiratory diseases 4·71 per 1,000 of population; rate of deaths under one year to 1,000 births 184.

The vital statistics compare favourably with the previous year: the birth-rate was fractionally increased, and there was a diminution in the death-rate of 1 per 1,000 of the population. The principal zymotic diseases caused fewer deaths, and the rates of mortality from phthisis and respiratory diseases were reduced. The infant mortality, although lower than last year, was somewhat high. The most prevalent of the zymotic diseases was typhoid fever, which gave rise to 135 cases and 21 deaths; the cause of this filth disease deserves careful investigation. Scarlet fever occasioned 36 cases but only 1 death; and diphtheria and membranous croup 10 cases and 5 deaths. There were no deaths from measles or whooping cough. The Isolation Hospital—provided with 34 beds and disinfecting apparatus—was used for the treatment of 9 cases of scarlet fever and 48 cases of typhoid fever.

Water Supply is described as “pure and absolutely free from bacteria and every sign of contamination.”

Sewerage, Scavenging, &c.—The sewage is discharged into the estuary of the river Mersey. Sewer flushing was continually carried out during the year by five automatic flushing tanks consuming 1,616,000 gallons of water. The water used in flushing the street and passage sewers amounted to 751,000 gallons, making a total of 2,370,000 gallons of water used; where necessary, disinfectants are employed in conjunction

with the flushing of the sewers. Some delay has taken place in the conversion of privy-middens "due to the legal difficulties of dealing therewith." In scavenging, the internal and external privy walls, soiled ground, and back passages are disinfected by hand fire engine with a solution of hypochlorite of soda, and a layer of chloride of lime is deposited over the bottom of each privy.

Sanitary Inspection.—The bakeries (24) and slaughter-houses (13) were kept clean and well conducted. Dairies and cowsheds are described as fairly satisfactory and under Regulations: 800 cubic feet of air-space is required for each cow. Of 42 samples purchased under the Sale of Food and Drugs Act, 1 was found to be adulterated, and on being brought before the magistrates a fine was inflicted. The Inspector (Mr. Lowe) reports that 509 notices were issued for the abatement of 1,071 nuisances, particulars of which are contained in his report. Sixty-six canal boats came under observation, and 11 contravened the Acts 1877-84. Twenty-six houses received disinfection, and 1,095 articles passed through the disinfector at the hospital. No action was taken with respect to black smoke.

Withington.—(Area in acres, 5,728; Estimated Population, 30,000).—*Medical Officer of Health*, T. C. RAILTON, M.D. (Lond.); *Salary*, £270.—Birth-rate 19·7, death-rate 12·9, zymotic rate 1·06, death-rate from phthisis 0·83, and from respiratory diseases 1·80 per 1,000 of population: rate of deaths under one year to 1,000 births 138.

The birth-rate shows a reduction of 3·6 per 1,000 of the population as compared with the preceding year, and stands the lowest recorded during the past decade. After deducting 603 deaths occurring in the Chorlton Union Workhouse of persons not belonging to the district, the death-rate corresponds to 12·9, or 0·8 in excess of last year's rate. There was an improvement in the zymotic rate, but the proportion of deaths of

infants under 1 year to 1,000 births rose from 95 in 1897 to 138. Diarrhœa, with 13 deaths, proved the most fatal of the zymotic diseases. Whooping cough caused 5 deaths, and measles 2. Comparatively few cases of the latter were reported, and the Council decided to withdraw measles from the list of notifiable diseases, and rely in future upon the school authorities for information respecting the existence of this disease and whooping cough. Scarlet fever gave rise to 70 cases, Didsbury suffering most, as in 1897. Forty cases—equal to 57 per cent. of the whole—were removed to the Monsall Hospital, as compared with 65 per cent. in 1897, and 54 per cent. in 1896; 4 deaths occurred in hospital, and 1 at home giving a mortality equal to 7 per cent. of the total cases notified. Enteric fever was responsible for 25 cases, 4 deaths; 10 patients were removed to Monsall and 2 to the hospital at the Chorlton Workhouse. Diphtheria and membranous croup caused 22 cases 5 deaths, four diphtheria cases being treated at Monsall. As instances of how infectious disease is spread Dr. Railton reports that a girl, in the “peeling” stage of scarlet fever was allowed to attend a public tea-party, and in a case of diphtheria he found the mother nursing the patient, surrounded by no less than eight other persons. In the first mentioned case legal proceedings were taken against the parents, and a fine of 20s. and costs was inflicted. Considerable progress has been made in the scheme for building an Isolation Hospital at Baguley. The plans have been approved, and the actual work of building will shortly be commenced.

Water Supply is obtained chiefly from the Manchester Corporation, but the outlying districts have to depend on unreliable pump water.

Sewerage, Scavenging, &c. The Mersey and Irwell Joint Committee report that the sewage works are quite inadequate for the district, and they have called upon the Council to construct further works to ensure efficient treatment. During the year four experimental filters on biological principles were

laid down. The difficulty of draining the property standing on the outskirts of the district has not yet been surmounted, and many objectionable cesspools still remain. Scavenging is performed by the Authority, the refuse being taken to the sewage farm or burnt in the destructor.

Sanitary Inspection.—The district continues to extend, no less than 402 new houses being certified fit for habitation during the year. The drainage of all new property is thoroughly tested before occupation. Slaughter-houses (5) are inspected weekly, and the bakehouses (28) receive attention. Nine of the latter are in cellars and do not give satisfaction. The dairies (115) appear to be kept in good sanitary condition, and the cowsheds (74) are steadily being brought up to the present standard of sanitation. Factories and workshops came under observation, and all insanitary conditions were dealt with. The Inspector served 257 notices, and 167 received attention; legal proceedings followed in 5 instances. The Manchester disinfecting apparatus was used for 2,706 articles of clothing, bedding, &c., and 97 houses were fumigated.

Withnell.—(Area in acres, 3,620; Estimated Population, 3,500).—*Medical Officer of Health*, JOHN SINCLAIR, M.B.; *Salary*, £20.—Birth-rate 22·0, death-rate 11·7, zymotic rate 0·57, death-rate from phthisis 0·57, and from respiratory diseases 1·14 per 1,000 of population; rate of deaths under one year to 1,000 births 116.

The vital statistics compare favourably with 1897. A reduction of 2·5 per 1,000 in the birth-rate is accompanied by a decrease of 5·4 in the death-rate. The zymotic, phthisis, respiratory, and infant rates also show a reduction. The zymotic deaths, 2 in number, were ascribed to typhoid fever. Twenty-seven cases of infectious disease were notified, viz., scarlet fever 10, typhoid fever 5, diphtheria 6, croup 3, erysipelas 2, and puerperal fever 1. The Blackburn Hospital

is said to be available for the treatment of cases from this district, but no patients were removed.

Water Supply is now much more satisfactory than formerly, but could be further improved by the construction of an additional filter bed.

Sewerage, Scavenging, &c. The sanction of the Local Government Board has been obtained to complete the sewage schemes in Brinscall, Withmell Mill, and Abbey Village. No reference is made to scavenging.

Sanitary Inspection.—Dr. Sinclair draws attention to the careless manner in which the drains of new houses are laid. These should be examined by the Surveyor before being covered up. Two dilapidated houses in Bolton Road were demolished, and two in Woods Fold are being dealt with. The Medical Officer of Health reports that the farms, cowsheds, and shippens are in a “filthy, unhealthy, and badly ventilated condition.” Very little information is given respecting the sanitary work carried out. Form C. was not supplied.

Worsley.—(Area in acres, 5,584; Estimated Population, 12,953; *Medical Officer of Health*, R. SAYERS, M.D.; *Salary*, £30 (no claim).—Birth-rate 21·1, death-rate 12·5, zymotic rate 1·23, death-rate from phthisis 0·77, and from respiratory diseases 1·92 per 1,000 of population; rate of deaths under one year to 1,000 births 150.

The statistics of mortality vary but slightly from those of 1897. The death-rate gave a reduction of 0·3 per 1,000, or 2·0 below the average of the previous five years. The zymotic rate declined 0·42, but the infant rate was fractionally higher. Wakden had the lowest death-rate with 12·1, and Boothstown the highest with 11·1. The zymotic rate was accounted for by 11 deaths from diarrhoea, 2 from whooping cough, and 3 from typhoid fever. Fifty-three notifications of infectious disease

were received, against 47 in 1897, and 113 in 1896. Scarlet fever gave rise to 21 cases, typhoid fever 17 (16 in Walkden), erysipelas 12, and puerperal fever 3. The Council have an arrangement for the use of 6 beds in the Salford Sanatorium, and 3 cases of typhoid fever were treated there during the year.

Sewerage, Scavenging, &c.—The sewage is treated at the Barton Old Hall sewage works. Scavenging, as performed by contractors, gives satisfaction.

Sanitary Inspection.—Bakehouses and slaughter-houses are in good condition, but the same cannot be said of the dairies and cowsheds. Unfortunately the Council have not yet adopted Dairy, &c., Regulations under the Order of the Local Government Board. Canal boats are inspected, as well as factories and workshops. The Inspector secured the abatement of 148 nuisances, after service of 25 notices, and took two smoke observations.

RURAL SANITARY DISTRICTS.

Barton-upon-Irwell.—(Area in acres, 6,865; Estimated Population, 8,600).—*Medical Officer of Health*, HENRY KNOWLES, L.R.C.P.E.; *Salary*, £60.—Birth-rate 23·8, death-rate 12·3, zymotic rate 1·86, death-rate from phthisis 0·81, and from respiratory diseases 1·97 per 1,000 of population; rate of deaths under one year to 1,000 births 131.

As compared with 1897, the birth and death rates show a reduction of 2·0 and 0·9 per 1,000 respectively. “The disparity between the death-rates of the northern township (Clifton) with the mining and factory occupation of its inhabitants, and the southern agricultural and residential population, is very well marked—Clifton, general death-rate 21·0, zymotic rate 3·1; other townships, death-rate 7·9, zymotic rate 0·17.” The zymotic and phthisis rates ruled somewhat higher than last year, but the respiratory and infant rates were reduced. Diarrhœa was responsible for 6 deaths, and whooping cough 2. Typhoid fever caused 51 cases and 8 deaths; 48 of the attacks occurred in Clifton, and there is every reason to believe that the majority of them were due to soil contamination, greatly favoured by the hot, dry autumn season. Seven of the cases were removed to the Ladywell Sanatorium, where 2 died. Diphtheria gave rise to 16 cases—2 in Davyhulme and 14 in Flixton. Half of the total cases occurred in July, and were traceable to attendance at a school in Urmston; the school was closed for a short period. The other notifications were due to scarlet fever 9, erysipelas 11, and croup 1.

Water Supply is obtained from Manchester and Bolton, with the exception of a few scattered dwellings.

Sewerage, Scavenging, &c.—The Mersey and Irwell Joint Committee have complained of the unsatisfactory character of the effluent from the sewage works. The usual flushing of the sewers has been continued with good results. The scavenging is undertaken by contract in Clifton; in Davyhulme and Flixton the Authority does the work, while in Barton Moss the responsibility in this matter is placed on the occupiers.

Sanitary Inspection.—Bakehouses, slaughter-houses, and dairies were regularly inspected and found in good condition, but many of the old cowsheds do not give satisfaction. Factories and workshops come under supervision. The Inspector issued 81 notices, concerning 89 nuisances, and all were complied with. Forty-eight houses were disinfected, and 26 parcels of bedding, &c., stoved at the hospital. One smoke observation was taken.

Blackburn.—(Area in acres, 20,823; Population (Census 1891), 9,243).—*Medical Officer of Health*, W. R. POLLARD, L.R.C.P.E.; *Salary*, £40.—Birth-rate 28·7, death-rate 16·6, zymotic rate 1·29, death-rate from phthisis 0·64, and from respiratory diseases 2·38 per 1,000 of population; rate of deaths under one year to 1,000 births 161.

The zymotic, phthisis, and respiratory rates compare favourably with 1897, but there was a slight increase in the general death-rate and infant mortality. The death-rates varied from 53·2 per 1,000 in Osbaldeston, 36·6 in Salesbury, 32·2 in Dinckley, to 8·3 in Ramsgreave, 5·3 in Witton, and 3·9 in Balderstone. During the latter portion of the year Mellor and Balderstone were visited with an epidemic of measles, which necessitated the closing of two schools in Balderstone and one in Mellor. Diarrhœa caused 5 deaths, measles 1, scarlet fever 1, diphtheria 2, and typhoid fever 3.

Of the 50 notifications of infectious disease, scarlet fever contributed 29 cases, diphtheria 5, typhoid 9, puerperal fever 2, and erysipelas 5. The township of Livesey was responsible for 35 of the 50 cases notified, and 9 out of a total of 12 zymotic deaths. The district is not provided either with hospital accommodation or proper disinfecting apparatus.

Water Supply to the townships of Mellor and Billington has again been unsatisfactory.

Sewerage, Scavenging, &c.—The main sewers and disposal works for Wilpshire, Livesey, and Pleasington are practically completed, and the work of connecting the private drains with the sewers is being carried out. At Eccleshill and Mellor Brook the sewers have been laid, but the disposal works are not yet completed. Billington and Langho are still unprovided with means of sewage treatment. The scavenging is not at all satisfactory, the tenants being responsible for the work.

Sanitary Inspection.—A portion of Livesey, near Bower House Fold, is in a very insanitary state, and Dr. Pollard urges the Council to push on the coupling of the house drains to the sewers, and to pave the streets, both back and front; the ashpit system also requires to be put upon a more sanitary basis, and the old closet tanks ought to be removed. There are no public slaughter-houses, the cattle being killed at the farmsteads. Dairies and cowsheds have been improved, but the condition of some still leaves much to be desired. The Inspector served 75 notices, and the majority of the nuisances were subsequently abated.

Bolton.—(Area in acres, 25,026; Estimated Population, 36,537).—*Medical Officer of Health*, JAMES BARR, L.R.C.P.E., D.P.H.; *Salary*, £175.

The whole of this rural district has been absorbed owing to the Bolton, Turton, and Westhoughton Extension Act,

which came into operation September 30th, 1898. The greater part of the district, with an area equal to 11,434 acres and a population of 30,175, became incorporated with the County Borough of Bolton, and the remainder was taken into the urban districts of Turton and Westhoughton. No report has been received for the period during which Bolton (R.) formed part of the Administrative County.

Burnley.—(Area in acres, 41,164; Estimated Population, 18,500).—*Medical Officer of Health*, THOMAS DEAN, M.D.; *Salary*, £80. —Birth-rate 22·3, death-rate 13·0, zymotic rate 1·40, death-rate from phthisis 1·40, and from respiratory diseases 2·97 per 1,000 of population; rate of deaths under one year to 1,000 births 128.

The statistics presented by Dr. Dean vary but slightly from those recorded in the previous year. The general death-rate was 13·0 against 12·1 in 1897; the zymotic rate was reduced 0·21 per 1,000, but there was a slight increase in the phthisis, respiratory, and infant rates. The townships of Huncoat, Higham, Foulridge, and Blacko had a death-rate under the average, whilst Cliviger, Briercliffe, Worsthorpe, and Hapton were above the average. Diarrhœa proved the most fatal of the zymotic diseases with 10 deaths, while measles and whooping cough caused 4 and 2 deaths respectively. Scarlet fever had an increased prevalence, 79 cases being reported, against 30 in 1897. The disease was most marked in the Sabden portion of the township of Read, and at Huncoat and Simonstone; the character of the outbreak was mild, only 1 death occurring. Typhoid fever caused 14 cases, 4 deaths, and was clearly traceable in several instances to polluted drinking water and defective drainage. In the early part of the year typhoid fever broke out at a farm in Pendle, and was attributed to the water becoming polluted by drainage from a hen and poultry house finding its way into a well. Unfortunately the fever germs got into the milk, and it gave rise to

several cases in this and in a neighbouring district. The supply of milk was at once stopped, and the danger of water pollution removed. Diphtheria contributed 17 cases and 5 deaths: six of the attacks took place at Lane Side, Higham, and Dr. Dean points out that the water supply was contaminated by passing through a meadow which had been recently dressed with a manure containing a considerable amount of animal matter. The other infectious diseases were, erysipelas 14 cases 2 deaths, and puerperal fever 1 case. The Joint Hospital for this district will soon be available for the isolation of cases of infectious disease.

Water Supply.—Cliviger is still in want of wholesome water.

Sewerage, Scavenging, &c.—The Chief Inspector of the Ribbles Joint Committee reports that “the sewage of the following districts is still unprovided for, viz., Huncoat, Wheatley Lane, Cliviger, Worsthorne, Reedley Hallows, Blacko, and Higham.” The sewage of Read, Simonstone, and Hapton will before long be turned into the Burnley Corporation sewers. At Altham a septic tank is now completed. Scavenging is left in the hands of the Parish Councils at Blacko, Foulridge, Hapton, Huncoat, and Read, whilst that of Worsthorne is carried out by contract.

Sanitary Inspection.—Good work has been done in the improvement of roads and streets. Two houses condemned as unfit for human habitation were closed. There are no public bakehouses or lodging-houses; the slaughter-houses periodically inspected give satisfaction. Fifty-one notices have been served under the Dairies and Cowsheds Order, 31 relating to structural defects, and 20 to registration. The water supply of 15 farms received attention, and many have been improved as to lighting, ventilation, drainage, &c. Canal boats came under supervision, as well as the factories and workshops. The Inspectors report on 503 nuisances, for the abatement of

which it was necessary to serve 535 notices. The smoke nuisance was ignored "on account of no action being taken on the report of last year."

Bury.—(Area in acres, 14,643; Estimated Population, 14,844).
—*Medical Officer of Health*, W. H. BARR, L.R.C.P.E.;
Salary, £120.—Birth-rate 24·2, death-rate 14·0, zymotic rate 1·75, death-rate from phthisis 0·60, and from respiratory diseases 3·36 per 1,000 of population; rate of deaths under one year to 1,000 births 125.

An increase of 0·9 per 1,000 in the birth-rate is accompanied by a rise of 0·4 in the death-rate as compared with last year. There was a reduction in the zymotic rate, and an advance in the phthisis and respiratory rates; while no alteration took place in the infantile mortality. Diarrhœa caused 12 deaths, attributable, in the opinion of Dr. Barr, to the unwholesome water supplied during the summer months. Measles, although only the cause of 2 fatalities, prevailed somewhat extensively, and the British School at Affetside, and the Institute at Hollins were closed for five weeks. The other zymotic deaths were due to—typhoid fever 6, scarlet fever 3, diphtheria 1, and whooping cough 2. The amount of infectious sickness could not be ascertained, as the Infectious Disease (Notification) Act was not in force. This Act, however, came into operation on the 1st of January, 1899. "Fair progress" has been made with the joint hospital scheme.

Water Supply.—Many complaints have been received concerning the character of the water supplied by the Bury Corporation. The Medical Officer of Health says that at times it was "unwholesome and a danger to the public health."

Sewerage, Scavenging, &c.—The sewage of the Ainsworth district is not yet dealt with. Scavenging, as performed by contract, does not give satisfaction.

Sanitary Inspection.—Two houses condemned as unfit for habitation were demolished. The sanitary condition of the slaughter-houses, dairies, and cowsheds is not satisfactory. Some of the latter are only about five feet high, and the air space is as low as 252 cubic feet per cow. Factories and workshops received attention, and canal boats passing through the district were inspected. The Inspector (Mr. Porritt) served 99 notices, and secured the abatement of 89 nuisances, 1 after the institution of legal proceedings. Fourteen smoke observations were taken and 2 summonses resulted.

Chorley.—(Area in acres, 10,013; Estimated Population, 18,100).—*Medical Officer of Health*, J. A. HARRIS, M.D. (Lond.); *Salary*, £150.—Birth-rate 29·3, death-rate 15·6, zymotic rate 0·99, death-rate from phthisis 0·77, and from respiratory diseases 2·54 per 1,000 of population; rate of deaths under one year to 1,000 births 139.

The vital statistics presented by Dr. Harris compare favourably with 1897. All the rates declined, the death-rate 1·1 per 1,000, the zymotic rate 0·39, and the phthisis, respiratory, and infant rates to a slight extent. The townships of Euxton, Bretherton, Heskin, Coppull, Mawdesley, and Rivington showed the most marked decrease in deaths, whilst Cuerden, Eccleston, Whittle-le-Woods, and more especially Wheelton, have yielded a larger mortality than in the preceding year. Measles prevailed somewhat extensively at Brindle, and St. Joseph's School was closed; at Rivington the prevalence of mumps induced the Medical Officer of Health to advise school closure. No deaths from these diseases occurred, but diarrhoea gave rise to 10 fatalities. Cases of infectious disease were notified in all the townships except Welch Whittle, Clayton-le-Woods, and Cuerden; Coppull and Whittle-le-Woods being the most affected. Of the 103 cases reported scarlet fever was responsible for 36, typhoid fever 27, and diphtheria 11. The joint hospital is nearing completion.

Water Supply.—Coppull is supplied from the Liverpool Corporation Waterworks. The other townships are more or less indifferently supplied by wells, pumps, and rain water. A comprehensive scheme for providing the townships of Heapey, Wheelton, Clayton-le-Woods, Whittle-le-Woods, and Euxton with water has been prepared by the Surveyor.

Sewerage, Scavenging, &c.—Sewage works are in operation in five of the townships. Considerable work has been done in sewerage and providing ventilating shafts to the sewers at Coppull. There is no proper system of scavenging, the occupiers being responsible for the removal of refuse.

Sanitary Inspection.—Bakehouses (6) and slaughter-houses (6) give satisfaction. Dairies and cowsheds are “occasionally inspected,” and described as in moderately good condition, although not subject to Regulations. The Inspector served 101 notices for the abatement of nuisances, and all were complied with, viz., drains repaired or cleansed 46, privies erected or repaired 18, dirty houses cleansed 30, and 7 of a miscellaneous character.

Clitheroe (Lancashire portion).—(Area in acres, 30,889; Population (Census 1891), 7,101).—*Medical Officer of Health*, W. P. COUNSELLOR, M.D.; *Salary*, £50.—Birth-rate 21·2, death-rate 12·9, zymotic rate 0·56, death-rate from phthisis 0·70, and from respiratory diseases 2·53 per 1,000 of population; rate of deaths under one year to 1,000 births 112.

The death-rate is the lowest recorded during the last 24 years, and 2·7 per 1,000 below the rate of 1897. The zymotic rate remains exactly the same as last year, but the proportion of deaths of infants under one year to 1,000 births rose from 83 to 112. Phthisis and respiratory diseases caused fewer fatalities. The zymotic deaths were due to scarlet fever 2, typhoid fever 1, and whooping cough 1. Scarlet fever gave rise to much sickness in Sabden, but, fortunately, the disease

was of a mild type. "It was considered useless to close the school, but children living outside the village were excluded with good effect, and two months' absence for each infected child enforced." Altogether 63 cases of scarlet fever were notified, 8 of typhoid fever, and 4 of erysipelas. The district still remains unprovided with either hospital accommodation or disinfecting apparatus.

Water Supply.—Some improvements in the water supply have taken place at Lamb Roe and Thornley, but no steps have yet been taken to provide an adequate supply of pure water for Chipping, Bailey Green, Titum, and Mitton Farm.

Sewerage, Scavenging, &c.—The new sewage system at Wiswell has been completed, and with the outfall works in the other townships have done useful work. Scavenging is carried out by the householders, except in Sabden, and reported as satisfactory.

Sanitary Inspection.—There are no lodging-houses or bakehouses, and the slaughter-houses occasion no complaint. Dairies and cowsheds (21) are registered, and, with the exception of Mitton Farm—which is in want of a proper water supply—comply with the Regulations. The Inspector issued 46 notices for abatement of nuisances, including 10 demanding structural alterations, and two notices to whitewash workshops.

Fylde.—(Area in acres, 47,349; Estimated Population, 15,792).—*Medical Officer of Health*, E. G. B. STARRIE, M.B.; *Salary*, £60.—Birth-rate 26·5, death-rate 14·1, zymotic rate 0·94, death-rate from phthisis 0·88, and from respiratory diseases 2·65 per 1,000 of population; rate of deaths under one year to 1,000 births 145.

As compared with 1897 the birth and death rates showed a decrease of 0·7 and 2·8 per 1,000 respectively; the zymotic rate was reduced 1·45, and the proportion of infant deaths to

births fell from 160 to 145. Diarrhœa gave rise to 7 deaths, typhoid fever 4, diphtheria 2, measles 2, and whooping cough 1. Owing to the prevalence of mumps, Dr. Starkie advised the closure of schools at Wesham, Esprick, and Ballam. Scarlet fever had a diminished prevalence, only 12 cases being reported against 52 in 1897, and 56 in 1896. Typhoid fever caused 43 cases—28 occurring in the village of Thornton. The infected area comprises a collection of new property, thickly populated, and has no adequate provision for the removal of sewage and excreta, consequently the ditches, water-courses, and soil have become sewage soaked. Diphtheria and erysipelas each contributed 4 cases. Sites have been obtained for the joint hospitals—1 for smallpox and 2 for ordinary diseases.

Water Supply described as “generally good,” but extension of Fylde water to Elswick village, as reported last year, is still needed. This village depends for its supply on wells, which are, in many instances, unfit for use.

Sewerage, Scavenging, &c.—The Medical Officer of Health reports that the townships of Wesham, Freckleton, and Poulton have sewerage schemes. In the rural localities cesspools are in vogue. A Joint Committee has been formed to carry out a sewage scheme for Carleton, Thornton, and Bispham. Scavenging is carried out by contract.

Sanitary Inspection.—Of 5 houses condemned as unfit for habitation 3 were closed and 2 repaired. Bakehouses and slaughter-houses give satisfaction, but the sanitary arrangements of the dairies and cowsheds are not perfect. The Inspector (Mr. Jolly) served 134 notices, and secured the abatement of 174 nuisances, including 50 drains opened, cleaned, and rectified, 40 privies and ashpits repaired or reconstructed, &c. Thirty-eight houses were disinfected after infectious disease. Legal proceedings were instituted in respect of 4 infringements of the Public Health Act.

Garstang.—(Area in acres, 60,199; Population (Census 1891), 12,151).—*Medical Officer of Health*, THOMAS FISHER, M.R.C.S.; *Salary*, £70.—Birth-rate 20·9, death-rate 13·0, zymotic rate 0·24, death-rate from phthisis 0·65, and from respiratory diseases 2·38 per 1,000 of population; rate of deaths under one year to 1,000 births 94.

The birth and death rates showed a decrease of 3·8 and 1·5 per 1,000 respectively. The zymotic rate was 0·24, as compared with 1·56 in the previous year, and the rate of deaths of infants under one year to 1,000 births fell from 149 in 1897 to 94. Hambleton (24·5), Bleasdale (19·9), and Barnacre-with-Bonds (18·8) had the highest death-rates, whilst no deaths were recorded in Cleveley, Holleth, and Winmarleigh. Only 3 fatalities were due to zymotic diseases, viz., typhoid fever 2, and diarrhœa 1. Ninety-seven cases of infectious disease were notified; scarlet fever, of a mild type, accounting for 72. The townships chiefly affected were Garstang (20 cases), Catterall (10 cases), and Pilling, Upper Rawcliffe-with-Tarnacre, and Kirkland (9 cases each). Typhoid fever caused 12 cases, diphtheria 1 case, croup 2 cases, relapsing fever 9 cases, and puerperal fever 1 case. The district remains unprovided with hospital accommodation or disinfecting apparatus.

Water Supply described as “very variable.” Great Eccleston will soon be supplied from the Fylde Water Company. Knott End is greatly in need of a wholesome supply.

Sewerage, Scavenging, &c.—The character of the drainage and sewage disposal is described as “generally unsatisfactory.” The schemes for Knott End and Hambleton still remain in abeyance. Some progress has been made at Catterall, Great Eccleston, Garstang, and Calder Vale. Scavenging is performed by contract, and not satisfactory.

Sanitary Inspection.—Several houses have been condemned as unfit for habitation, and in one case legal proceed-

ings were resorted to, resulting in a conviction under the Housing of the Working Classes Act. Lodging-houses reported as regularly inspected and fairly well kept. Special attention has been devoted to the slaughter-houses of Barnacre-with-Bonds, Garstang, Great Ecclestone, Kirkland, and Pilling, where structural alterations were carried out. Bakehouses, workshops, canal boats (71), &c., received periodical visits. Dairies and cowsheds are not subject to Regulations, and far from satisfactory. Dr. Fisher urges the Council to strengthen his hands by adopting the usual Regulations. The Inspector secured the abatement of 184 nuisances after service of 220 notices. Each infected house was disinfected, and four schools were fumigated.

Lancaster.—(Area in acres, 55,174; Estimated Population, 12,924).—*Medical Officer of Health*, G. R. PARKER, L.R.C.P. (Lond.); *Salary*, £50.—Birth-rate 29·9, death-rate 14·1, zymotic rate 0·92, death-rate from phthisis 0·85, and from respiratory diseases 1·85 per 1,000 of population; rate of deaths under one year to 1,000 births 131.

The gross death-rate equalled 14·93 per 1,000, but excluding the deaths which took place in the Royal Albert Asylum, the rate is reduced to 14·1, or a decrease of 1·6 as compared with 1897. The zymotic rate declined 0·51, but the proportion of infant deaths to births was somewhat higher. Whooping cough—although only the cause of one death—prevailed throughout the district, and at Overton it was necessary to adopt school closure. Diarrhoea caused 6 deaths, typhoid fever 3, and diphtheria and scarlet fever 1 each. Scarlet fever gave rise to 13 cases, and for the first time in four years a case terminated fatally. Typhoid and continued fever contributed 29 cases, erysipelas 7 cases, and measles, which is notifiable in this district, 31 cases. There is no hospital accommodation available, the meeting of neighbouring Authorities to consider the hospital question proved abortive. There is also a want of efficient disinfecting apparatus.

Water Supply.—The extension of the water supply to Galgate has only been effected in a few instances. Heysham will be supplied from Lancaster as soon as the laying of the mains is completed.

Sewerage, Scavenging, &c.—All the sewers discharge into tidal waters. During the year the drainage of Heysham has been carried out, and many house drains have been connected. A scheme is in hand for the extension of sewers at Scotforth and Bolton-le-Sands. Scavenging is performed by contract in Galgate and Skerton; in the other parts of the district the occupiers are responsible for the work.

Sanitary Inspection.—Periodical inspections of the district are conducted by the Medical Officer of Health and Inspector. Regulations under the Dairies, Cowsheds, and Milk-shops Order were made in March, "but no attempt has been made to enforce them." An inspection of the cowsheds is, however, now in progress, and "the Authority will, after full consideration of each case, assert its power." The cubic space per cow is not fixed. Dr. Parker advises the Council to require 800 cubic feet, with a minimum floor space of 50 square feet per cow. The two lodging-houses are well kept. Twenty-one canal boats received 34 visits, and in one case an infringement of the Act was discovered. The Inspector served 64 notices, and secured the abatement of 56 nuisances.

Leigh.—(Area in acres, 11,568; Estimated Population, 8,300).—*Medical Officer of Health*, C. CHALLINOR, L.R.C.P. (Lond.), D.P.H.; *Salary*, £80.—Birth-rate 32·4, death-rate 16·5, zymotic rate 2·16, death-rate from phthisis 0·48, and from respiratory diseases 2·04 per 1,000 of population; rate of deaths under one year to 1,000 births 137.

The birth and death rates show an increase as compared with 1897, but the zymotic, phthisis, respiratory, and infant rates were more favourable. Diarrhœa was the cause

of 8 deaths, and measles 2. Scarlet fever prevailed somewhat extensively, 72 cases being notified; of these 42 occurred in Culcheth, and 25 in Lowton. The Medical Officer of Health "deemed it best not to close the schools, but exclude from the schools all children likely to convey infection." Typhoid fever gave rise to 10 cases, diphtheria 2, puerperal fever 1, and erysipelas 10. The Joint Hospital at Tyldesley was used for the isolation of 42 patients, 35 suffering from scarlet fever, and 7 from typhoid fever. Four of the former and 2 of the latter died in hospital.

Water Supply.—A constant supply of water now exists in all townships, except the scattered rural parts which have to depend on wells. Five wells were closed during the year, and 3 thoroughly cleaned and repaired.

Sewerage, Scavenging, &c.—The Medical Officer of Health reports that "owing to the rural character of the district and its extent, no complete sewage scheme for the whole is feasible, but each populous portion is dealt with separately. An improvement is desirable in Astley at Lower Green, where there is practically an open sewer; this might be remedied by conveying the sewage in pipes." Scavenging is said to be satisfactorily performed, but the tenants have to make their own arrangements for the emptying of ashpits.

Sanitary Inspection.—Legal proceedings were successfully instituted *re* insanitary property at Lowton. Lodging-houses, dairies, cowsheds, and milk-shops were periodically examined, and 3 notices issued for improvements in the shippens. Canal boats came under observations, and 4 infringements of the Act were brought before the magistrates. The Inspector gives details of the nuisances abated, including 56 drains repaired and cleaned, 10 foul ditches cleaned, 133 privies and ashpits reconstructed or repaired, 9 old privies and ashpits replaced by 13 new ones, 50 houses put in a sanitary condition, animals, so kept as to be a nuisance, removed 9, and 60 of a

miscellaneous character. Notices served amounted to 263. Sixty-eight houses were disinfected after infectious disease.

Limehurst.—(Area in acres, 5,426; Estimated Population, 9,420).—*Medical Officer of Health*, T. COOKE, M.R.C.S.; *Salary*, £40.—Birth-rate 31·8, death-rate 18·9, zymotic rate 2·01, death-rate from phthisis 1·38, and from respiratory diseases 2·54 per 1,000 of population; rate of deaths under one year to 1,000 births 160.

The vital statistics do not compare favourably with the preceding year. The birth-rate was reduced 5·2, and there was an increase in the death-rate equal to 2·3 per 1,000. The zymotic rate was 2·01 against 1·59, and the proportion of deaths of infants under one year to 1,000 births rose from 146 in 1897 to 160. Scarlet fever gave rise to 17 cases 2 deaths, typhoid fever 6 cases 2 deaths, and diphtheria 1 case 1 death. Diarrhoea was responsible for 11 deaths, and whooping cough 3. No cases were removed to hospital.

Water Supply, obtained from Ashton-under-Lyne, gives satisfaction.

Sewerage, Scavenging, &c.—Plans for the sewerage schemes of the townships of Waterloo and Bardsley have been approved by the Local Government Board. Provision for the Cross Bank district has not yet been made. The Council contract for the scavenging.

Sanitary Inspection.—There are no bakehouses or lodging-houses; the slaughter-houses (4) are regularly inspected, and factories and workshops receive attention. Dairies and cow-sheds are subject to inspection, and recently Regulations have been made under the Order of the Local Government Board. The Inspector served 17 notices for abatement of nuisances, and all were complied with.

Lunesdale.—(Area in acres, 75,734; Population (Census 1891), 7,347).—*Medical Officer of Health*, DOUGLAS J. M. BONE, M.B.; *Salary*, £20.—Birth-rate 25·3, death-rate 14·6, zymotic rate 0·54, death-rate from phthisis 0·66, and from respiratory diseases 1·63 per 1,000 of population; rate of deaths under one year to 1,000 births 134.

The birth-rate and zymotic rate are exactly the same as last year, but the death-rate increased 2·0 per 1,000; this is accounted for by the higher rate of infantile mortality, which was 134 per 1,000 births against 75 in the preceding year. The sub-districts of Caton and Arkholme had the highest death-rates, and Tunstall the lowest. Dr. Bone states that the two districts with the greatest mortality are the most in need of sanitary improvements. He attributes much of the infantile mortality to improper feeding, and insanitary dwellings and surroundings. Measles, which is notifiable in this district, gave rise to 11 cases, and at Whittington it was considered advisable to extend the Christmas school vacation. Scarlet fever—the cause of only 1 death—gave rise to little trouble, except in Caton, where at the beginning of the year the spread of the disease necessitated school closing for a few weeks. Typhoid and typhus fever each caused 1 case. As reported last year, this extensive district is entirely unprovided with hospital accommodation or proper disinfecting apparatus. The Medical Officer of Health urges the Council to make some provision for small-pox, and also to provide portable disinfecting apparatus.

Water Supply to the larger villages is now satisfactory, but improvements are desirable at Hornby, Cowan Bridge, Leck, Overton, and Whittington.

Sewerage, Scavenging, &c.—In Hornby, Wray, part of Caton, and Halton, the sewage is removed by sewers which have been regularly flushed, but the effluent often finds its way into the rivers. Scavenging remains very unsatisfactory, and the refuse in many cases is tipped into the streams.

Sanitary Inspection.—All the villages were visited during the year, and many nuisances removed, but much remains to be done, as some premises are in a deplorable condition in regard to sanitary matters. The townships needing most improvement are Wray, Caton, Brookhouse, and Whittington. Slaughter-houses receive attention, and canal boats passing through the district are examined. The dairies, cowsheds, and milk-shops receive no attention, and no Regulations have been framed; many of them are in a very bad condition. Dr. Fletcher, one of the Medical Inspectors of the Local Government Board, made an inquiry into the sanitary circumstances and administration of this district, and concludes his report as follows:—"There is much room for improvement, especially with respect to proper provision for the deposit and removal of nightsoil and house refuse, but I am of opinion that this is due, in the main, to the attitude of the District Council, who appear to be very unwilling to take action on the reports of their officers, with the result that discouragement has ensued from their indifference."

Preston.—(Area in acres, 49,063; Population (Census 1891), 15,200).—*Medical Officer of Health*, CHARLES J. TRIMBLE, L.R.C.P.E., D.P.H.; *Salary*, £75.—Birth-rate 25·1, death-rate 12·7, zymotic rate 0·73, death-rate from phthisis 1·05, and from respiratory diseases 2·36 per 1,000 of population; rate of deaths under one year to 1,000 births 133.

The health of this district, as shown by the vital statistics, has during the year been of a very satisfactory character. The death-rate at 12·7, or 1·6 less than in 1897, was low, and equally favourable were the zymotic, respiratory, and infant rates. Not a single death took place from either scarlet fever or diphtheria, although 7 cases and 2 cases respectively were notified. Measles caused 3 deaths, and its serious spread at Ribchester necessitated school closure. Occasional cases of typhoid fever were notified, amounting in all to 12, distributed

in a like number of families scattered over the whole district. As Dr. Trimble says, the wheels of the hospital construction machine move slowly ; so far little progress has been made.

Water Supply has been extended in Penwortham and Longton, and all the districts south of the Ribble are now mostly supplied. A portion of the township of Farington, known as East, West, and South Views, is very much in want of a water supply.

Sewerage, Scavenging, &c.—The schemes for the sewerage of Middleforth Green and Farington have been pushed forward ; in both cases the sewage will be treated on the biological system. The Broughton sewerage scheme—septic tank and four filters—has been completed ; and satisfactory treatment of sewage has resulted from the operations at Grimsargh and Ribchester.

Sanitary Inspection.—There are no bakehouses or lodging-houses. Slaughter-houses have been conducted without complaint. Dairies and cowsheds—subject to Regulations—are as a rule clean and well kept, and the new cowsheds comply with the space required per cow, namely, 800 cubic feet. Factories and workshops came under supervision, and also 73 canal boats. The Inspector (Mr. Ashcroft) served 64 notices to abate 103 miscellaneous nuisances, and disinfected 55 houses.

Sefton.—(Area in acres, 16,924 ; Population (Census 1891) 7,744).—*Medical Officer of Health*, ROBERT M. ANDERSON, L.R.C.P.E. ; *Salary*, £100.—Birth-rate 22·3, death-rate 10·5, zymotic rate 1·42, death-rate from phthisis 1·29, and from respiratory diseases 1·42 per 1,000 of population ; rate of deaths under one year to 1,000 births 92.

The death-rate, which was very low, bears favourable comparison with 1897. The zymotic and infant rates, although satisfactory, show a slight increase. The death-rates of

Orrell and Ford and Ince Blundell were considerably in excess of the other portions of the districts. In these townships the whole of the deaths from typhoid fever (3) and scarlet fever (1) took place; diphtheria and membranous croup caused 6 cases and 3 deaths, diarrhoea 5 deaths, and whooping cough 1 death. One case of small-pox occurred at the Cottage Homes, Fazakerley; the origin of the infection could not be traced. Removal to the hospital of the Liverpool Corporation and stringent precautionary measures, including re-vaccination of children over 10 years of age, stopped the spread of the disease. One school was closed for scarlet fever and ophthalmia. There is an isolation hospital provided, but no cases were removed. Disinfecting apparatus has not been acquired.

Water Supply reported as good, except in Sefton. The water supply for the latter township has proved "a serious problem on account of the pollution of some of the wells." A supply from the Liverpool mains would solve the difficulty, and in the meantime St. Helen's well should be protected from pollution.

Sewerage, Scavenging, &c.—The sewage from Kirkby Park discharges into an open brook and causes a nuisance. Some form of treatment is recommended. With the extension of building operations in Fazakerley a drainage scheme will soon be called for. The houses in the vicinity of Higher Lane drain into cesspools, and a similar system is in vogue in Orrell and Ford. The scavenging is performed in part of the district by contract, and in other parts by the householders.

Sanitary Inspection.—The manure works at Fazakerley have been conducted so as to reduce to a minimum all cause of complaint. Attention was paid to the smoke nuisance, and more careful stoking rendered legal proceedings unnecessary. Dairies and cowsheds were fairly well conducted and improved in many respects. Regulations are in force, and 800

cubic feet of space per cow is insisted upon. The Inspector secured the abatement of 29 nuisances after issuing the usual notices.

Ulverston.—(Area in acres, 128,927; Population (Census 1891), 18,773).—*Medical Officer of Health*, G. H. PATTERSON, M.R.C.S., D.P.H.; *Salary*, £180.—Birth-rate 22·2, death-rate 12·7, zymotic rate 0·63, death-rate from phthisis 0·74, and from respiratory diseases 1·43 per 1,000 of population; rate of deaths under one year to 1,000 births 90.

As compared with 1897 there was a reduction in the birth-rate equal to 1·4, and the death-rate, although low, gave a fractional increase. The zymotic, phthisis, and infant rates may be regarded as on the whole favourable. Measles, although not responsible for a single death, prevailed to some extent in Lindale-in-Cartmel, and school closure was necessitated. Typhoid fever contributed 27 cases and 2 deaths; the Broughton district being most affected. The Medical Officer of Health observes that it is a regrettable feature in the sanitary history of the district that there should be so many cases of a disease which is preventable, and essentially due to defective sanitation. Scarlet fever contributed 15 cases and 2 deaths; no cases were treated in the newly acquired Isolation Hospital, and a difficulty was experienced in isolating the cases at home. At Coniston 5 cases of diphtheria or membranous croup occurred, and also several cases of infectious sore throat. School influence had much to do with the outbreak, and closure was adopted. The other deaths from zymotic causes were due, 2 to whooping cough, 2 to diarrhoea, and 1 to typhus; the latter died in the Isolation Hospital.

Water Supply.—Improvements have been made in the supply of water to Much and Little Urswick, Backbarrow, Hawkshead, &c., and it is suggested that water be laid on to the villages of Skeldon Moor, Scales, Stainton, and

Gleaston. The supplies to Allithwaite, Coniston, Pennybridge, and Greenodd are receiving attention.

Sewerage, Scavenging, &c.—The scheme for sewerage the village of Leece, including plant for dealing with the sewage has been completed. Attention is drawn to the desirability of proper provision being devised for the drainage and treatment of sewage at Much Urswick, Gleaston, Newbiggin, Cark and Cartmel, and Bardsea. No proper arrangements have as yet been made with respect to the scavenging.

Sanitary Inspection.—Scant information is given concerning the sanitary work carried out in the district; it is suggested that future reports might contain a statement, drawn up by the Inspector, of matters which have engaged his attention. The dairies and cowsheds do not receive much inspection, and Regulations, although adopted, are not enforced.

Warrington.—(Area in acres, 18,729; Estimated Population, 11,070).—*Medical Officer of Health*, R. SEPTON, L.R.C.P.E.; *Salary*, £100.—Birth-rate 27·5, death-rate 13·7, zymotic rate 1·89, death-rate from phthisis 0·99, and from respiratory diseases 1·98 per 1,000 of population; rate of deaths under one year to 1,000 births 134.

The birth-rate differed only fractionally from that recorded last year, while the low death-rate showed a reduction of 0·6. The respiratory rate and deaths of infants under the age of 12 months were lower, and the zymotic rate corresponded closely with the rate for 1897. Scarlet fever was introduced into the district in January, and extended in the direction of Croft in May, and Martinscroft in November; altogether 45 cases occurred but no deaths. Measles attacked the children of Padgate and Sankey about June, and 3 deaths resulted. School closure took place. Typhoid fever gave rise to 5 cases and 3 deaths; the first fatal case occurred at Ainsworth's,

Farnworth Road, Penketh, due to defects in the drainage, &c. Diarrhœa—rather more prevalent than usual—caused 12 deaths, and whooping cough 2 deaths in the Sankey portion of the district. There is an arrangement with the Warrington Corporation for the reception of infectious cases into their hospital, and during the year 2 cases of scarlet fever and 1 of typhoid fever were admitted from the district.

Sewerage and Scavenging.—In rural districts houses drain into ditches ; the villages are mostly drained, and the sewage is carried on to the land. Scavenging is reported as being “ very fairly well done ” by contract.

Sanitary Inspection.—The district is periodically inspected by the Medical Officer of Health and Inspector, and sanitary defects coming under notice receive attention. Bakehouses, lodging-houses, and cowsheds (144) have been carefully looked after, and occasioned no complaint. The Inspector (Mr. Kerfoot) gives a tabulated statement of a large number of miscellaneous nuisances he caused to be abated ; canal boats inspected numbered 43 ; summonses issued to abate nuisances, 1 ; for keeping unregistered common lodging-houses 7 ; and for infringement of regulations under the Canal Boats Act, 1.

West Lancashire.—(Area in acres, 68,614 ; Estimated Population, 27,541).—*Medical Officer of Health*, G. E. SCHOLEFIELD, M.D., D.P.H. ; *Salary*, £300.—Birth-rate 23·7, death-rate 13·2, zymotic rate 1·23, death-rate from phthisis 0·87, and from respiratory diseases 1·96 per 1,000 of population ; rate of deaths under one year to 1,000 births 122.

The report for this district is written jointly by Dr. Peck, who, on being appointed to the Rural District of Chesterfield, terminated his office September 29th, and Dr. Scholefield, who was appointed on the 3rd of November. The vital statistics compare favourably with the previous year, and show a diminution of the death-rate equal to 1·81 per 1,000. The zymotic and respiratory rates were also reduced, and the

deaths of infants under one year per 1,000 births averaged 122, as against 157 in 1897. There was only 1 death from scarlet fever, although 72 cases occurred in 41 houses; isolation was provided at the hospital for 23 cases. Measles caused 5 deaths out of 101 cases which appeared in 57 houses; to prevent the spread of this disease three schools were closed. Diphtheria and membranous croup contributed 18 cases and 5 deaths, enteric fever 28 cases and 6 deaths, and whooping cough 16 cases 6 deaths. Holly House, Aughton, has been converted into an Isolation Hospital, and affords accommodation for 8 scarlet fever and 2 enteric patients; during the year 25 patients were admitted. The infectious cases from North Meols are removed by arrangement to the Hospital belonging to the Southport Corporation.

Water Supply.—Of the total houses in the district 73·8 per cent. are supplied by public service, equal to an increase during the year of 8 per cent. Rufford Village is now supplied with water, and extensions of the service have taken place in Tarleton, Hesketh, and Bickerstaffe. The township of Melling has also received an extended supply from mains laid by the Corporation of St. Helens.

Sewerage, Scavenging, &c.—The South Aughton Sewage Works were opened on April 5th, and the North Aughton Works are almost completed; 117 houses have been connected with the new sewers. Dr. Peck recommends that “the houses lying between Christ Church and Royal Oak, about 40 in number, should have the advantages of a sewer.” In Bickerstaffe sewers are being laid, and a scheme for sewerage Formby has been under consideration. The cesspool system is in vogue in the sparsely populated parts of the district. The northern portion of Aughton is scavenged, and the extension of the system to the southern portion of the township would be “very much appreciated by a large number of the inhabitants.” The Formby Parochial Committee have made satisfactory arrangements for the removal of ashpit refuse.

Sanitary Inspection.—Evidence is given of the efficiency of work carried out in the various townships. Altogether 492 notices were served, and 1,084 nuisances remedied; in 4 instances legal proceedings were successfully taken. The Inspector (Mr. Peach) gives detailed information of the various matters which engaged his attention. Five houses were condemned as unfit for human habitation, viz., 1 in Altcar, 1 in Formby, 1 in Scarisbrick, and 2 in Tarleton. The attention of the Council is directed to the desirability of better provision being made for the housing of persons belonging to the working classes. Of 28 samples purchased under the Sale of Food and Drugs Act, 2 were found to be adulterated. Sixty-seven canal boats were inspected, and, except in 4 cases, the conditions were very satisfactory. Slaughter-houses, with one exception, are well conducted; 8 quarters of beef were seized and destroyed. Dairies and cowsheds receive periodical inspection, but as yet no Regulations have been framed by the Council under the Order of the Local Government Board.

Whiston.—(Area in acres, 31,925; Estimated Population, 18,915).—*Medical Officer of Health*, EGERTON F. HALL, M.D.; *Salary*, £150.—Birth-rate 27·2, death-rate 11·2, zymotic rate 0·84, death-rate from phthisis 0·47, and from respiratory diseases 2·22 per 1,000 of population; rate of deaths under one year to 1,000 births 106.

Dr. Hall presents a very favourable report on the health of this district, the vital statistics were extremely satisfactory, and show an all-round improvement as compared with the previous year. The general death-rate gave a reduction of 1·6, and the proportion of infant deaths to 1,000 births was 106, as compared with 164 in 1897; the zymotic rate corresponded to 0·84 against 2·17, and the diminutions in the phthisis and respiratory rates were equally satisfactory. Scarlet fever was responsible for 31 cases and 1 death, and caused some trouble in the township of Eccleston. Typhoid fever contributed 28

cases and 3 deaths, measles 3 deaths, whooping cough 1 death, and diarrhoea 7 deaths. The Hospital was used for the isolation of 4 cases of scarlet fever, 5 of typhoid fever, and 2 of typhus fever.

Water Supply.—The township of Bold has suffered lately from bad water: “since the new colliery was started, water in the wells has considerably lessened.” An indifferent supply to certain houses in Tarbock was strongly suspected as the cause of a case of typhoid fever. In Whiston some 3,000 yards of mains have been laid, and the improved supply of water has given great satisfaction.

Sewerage, Scavenging, &c.—The drainage of Ditton—especially in the neighbourhood of the Ball Inn—requires immediate attention. Improvements have been effected in the drainage of blocks of property in Eccleston, Rainhill, and Tarbock. The Medical Officer of Health reports that scavenging is carried out satisfactorily in all the townships except Ditton.

Sanitary Inspection.—From a comprehensive report submitted by the Inspector (Mr. Fraser), it appears that 320 miscellaneous nuisances were dealt with. A nuisance from Halebank Stearine Works came under notice, and various alterations and improvements have been made, which it is hoped will remove the cause of complaint. It may be pointed out that in this Rural District the dairies and cowsheds do not come under supervision, and apparently no Regulations have been framed respecting them.

Wigan.—(Area in acres, 11,701; Estimated Population, 5,680).—*Medical Officer of Health*, REGINALD S. PEARSON, M.R.C.S.; *Salary*, £80.—Birth-rate 33·6, death-rate 17·4, zymotic rate 4·04, death-rate from phthisis 0·70, and from respiratory diseases 4·40 per 1,000 of population; rate of deaths under one year to 1,000 births 162.

The two divisions of this district have now been combined for administrative purposes. For a rural population

the vital statistics cannot be considered satisfactory; the death-rate was fractionally higher than last year, and above the average for the rural population of the County. The zymotic rate exceeded last year's rate by 2·83, and was largely due to the high diarrhoea mortality. From the same cause the proportion of infant deaths to births was increased. Measles broke out in Haigh, and occasioned 3 deaths in that township, necessitating school closure. Scarlet fever was responsible for 70 cases and 4 deaths; all the deaths took place in Shevington, where 44 of the cases occurred. The Medical Officer of Health reports that "the need of an Isolation Hospital was most keenly felt in dealing with this outbreak, and had we been able to isolate the earlier cases, I have no doubt that the epidemic might have been almost wholly prevented." These remarks deserve the careful attention of the Authority. Shevington also contributed 18 of the 22 cases notified as typhoid fever, and Wrightington 4, "in both these districts grossly insanitary conditions were found to prevail." Two of the cases apparently arose from the emptying of pails containing typhoid excreta. No deaths took place either from diphtheria or whooping cough.

Water Supply described as good in Parbold, Shevington, and Haigh, fair in Dalton, and deficient in Wrightington.

Sewerage, Scavenging, &c.—The drainage throughout the district is unsatisfactory, and requires prompt attention. Scavenging is carried out by contract.

Sanitary Inspection.—Very little information is given concerning the sanitary matters which came under observation, and in future reports more details will be required. Apparently 35 notices were issued and 30 nuisances abated. Cowsheds were inspected "unofficially," although not subject to Regulations. Dr. Pearson's report has been received in manuscript; if printed, as I have previously recommended, it would be of more value to the members of the Council.

EXTRACT FROM THE METEOROLOGICAL REPORT

BY THE

REV. W. SIDGREAVES, S.J., F.R.A.S.,

Of Stonyhurst College Observatory.

SUMMARY OF OBSERVATIONS

For 1898.

Results of Observations taken during the Year.				Mean for the last 51 years.
Mean Reading of the Barometer... inches	29.535			29.492
Highest „ on Jan. 15th „	30.193			30.282
Lowest „ on Nov. 25th „	28.399			28.264
Range of Barometer Readings... „	1.794			2.018
Highest Reading of a Max. Therm. on September 5th „ „ „	80.8			81.7
Lowest Reading of a Min. Therm. on November 28th „ „ „	22.0			15.5
Range of Thermometer Readings „ „ „	58.8			66.2
Mean of all the Highest Readings „ „ „	56.9			54.9
Means of all the Lowest Readings „ „ „	41.9			40.6
Mean Daily Range „ „ „	15.0			14.3
Deduced yearly Mean (from Mean of Max. and Min.) „ „ „	48.3			46.8
Mean Temperature from dry bulb „ „ „	49.0			46.8
Adopted Mean Temperature „ „ „	48.7			46.8
Mean Temperature of Evaporation „ „ „	46.0			44.5
Mean Temperature of Dew Point „ „ „	43.2			42.1
Mean elastic force of Vapour „ „ „	0.286in.			0.273in.
Mean weight of Vapour in a cubic foot of air „ „ „ „	3.3gr.			3.3gr.
Mean additional weight required for saturation „ „ „ „	0.8gr.			0.7gr.
Mean degree of Humidity (saturation 1.00) „ „ „ „	0.82			0.84
Mean weight of a cubic foot of air „ „ „ „	538.6gr.			539.2gr.
Total fall of rain in the year „ „ „ „	48.105in.			47.163in.
Number of days per month on which rain fell... „ „ „ „	17.6			18.6
The Maximum monthly mean height of the Barometer was in February, 1891, and was 29.997in.				
The Minimum „ „ in December, 1868, and was 28.984in.				

The Maximum yearly mean height of the Barometer was in 1896, and was	... ..	29·584in.
The Minimum „ „ in 1866, and was	... ..	29·389in.
The greatest monthly range of the Barometer was in January, 1884, and was	... ..	2·409in.
The least „ „ in July, 1852, and was	... ..	0·505in.
The highest reading of the Barometer during 51 years was on January 9th, 1896, and was	... ..	30·597in.
The lowest „ „ on December 8th, 1886, and was	... ..	27·350in.
Extreme range	... ..	3·247in.
The highest temperature was on June 18th, 1893, and was	... ..	88·7
The lowest „ „ January 15th, 1881	... ..	4·6
The highest adopted mean temperature of a month, July, 1868, and was	... ..	62·4
The lowest „ „ „ February, 1855	... ..	28·6
The highest adopted mean temperature of a year, 1868	... ..	49·1
The lowest „ „ „ „ 1879	... ..	44·1
The greatest monthly mean weight of vapour in a cubic foot of air, July, 1852	... ..	5·1gr.
The least „ „ „ February, 1855, and 1895	... ..	1·4gr.
The greatest fall of rain in a month, was in October, 1870, and was	... ..	13·437in.
The least „ „ „ „ May, 1859	... ..	0·249in.
The greatest number of days on which rain fell in one month Jan , 1872, Oct., 1873, Dec., 1868...	... ..	31
The least „ „ „ „ March, 1852	... ..	3

SUMMARY OF WIND.

No. of days in the year on which the prevailing wind was	N	NE	E	SE	S	SW	W	NW
	43	34	24	12	29	76	139	8
Mean Velocity in miles per hour ...	6·8	8·3	9·4	7·3	9·4	11·3	11·9	7·6
Total No. of miles for each direction..	6977	6739	5390	2090	6526	20533	39844	1461

The total No. of miles registered during the year was 89,560.

The max. Velocity of the wind was 49 miles per hour W. by S. on December 2nd, at 4 p.m.

TOTAL AMOUNT OF SUNSHINE RECORDED ON EACH DAY.
(Continued.)

MONTH.	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Monthly Total.	Per centage each month
January	0	0	0	0	2.7	0	1.7	0	0	0	0	0	0	2.8	16.6	6.7
February	3.9	0	6.6	5.1	7.8	9.4	6.0	0.5	6.1	5.1	3.3	0	0	0	88.4	32.5
March	0	1.8	10.6	8.2	7.3	3.8	6.6	6.0	2.1	1.0	0.1	0.9	1.2	6.2	129.6	35.4
April	10.1	9.3	0	0.6	1.4	0.6	2.6	11.3	1.7	0	0	1.4	0	0	129.0	30.8
May	9.6	4.4	1.8	0	7.2	5.4	11.6	2.4	10.6	8.6	11.6	0	4.1	5.2	175.2	35.5
June	0	7.8	0	0	9.6	5.7	3.3	1.8	3.4	0.8	14.0	3.3	2.8	0	165.9	32.7
July	1.2	0	13.7	6.3	0	4.8	11.7	11.1	7.8	11.4	5.1	6.5	12.0	5.0	235.8	46.3
August... ..	1.8	2.2	2.9	7.7	9.1	5.8	2.7	9.0	0	1.6	8.7	0	3.0	10.9	145.0	31.7
September	0.9	0	5.8	0.7	7.7	9.0	8.0	4.3	7.7	0	8.2	0	0	0	115.9	30.6
October	0	0	0	1.8	0.6	6.5	1.3	0	6.2	1.3	0.7	0	1.4	2.8	72.6	22.3
November	0	5.1	0	3.9	7.0	0	0	0	0.8	5.5	0.4	1.1	0	0	48.2	18.9
December	0	0.8	6.4	1.7	2.3	1.9	0	0	0	0	0	0	4.2	0	29.3	12.7

VITAL STATISTICS.

TABLE I.—DEATHS registered during the year 1898, in the **URBAN SANITARY DISTRICTS** of the Administrative County of Lancaster, classified according to Ages and Localities, and showing also the Area and Population of such Localities, and the Birth-Rate and Death-Rate during the year.

NOTE.—The Infectious Disease (Notification) Act is not in force in those Districts printed in italics.

URBAN SANITARY DISTRICTS.	Area in Statute Acres.	Population at all ages		Annual Rates per 1000 of estimated population.							Rate of Infant Mortality measured by the proportion of deaths under 1 yr. to 1000 births.	Mortality from all causes at subjoined ages.						
		Census, 1891.	Estimate to middle of 1898.	Registered Births.	Birth- rate.	Death- rate.	Death- rate from the seven principal Zymotic Diseases.	Phtisis Death rate.	Respi- ratory Death rate.	At all Ages	Under 1 year	1 and 5	5 and 15	15 and 25	25 and under 65	65 and upwards.		
ABRAM	1982	4309	5054	238	47.0	*25.3	5.14	1.78	3.75	247	130	59	25	6	11	22	7	
ACCRINGTON (Borough) ..	3425	38603	43105	1034	23.9	15.3	2.29	0.67	2.66	201	662	203	82	32	25	219	96	
ADLINGTON	1012	4190	4800	133	27.7	12.0	1.45	0.20	2.70	120	58	16	8	3	3	17	11	
ALLERTON	1585	914	1050	24	22.8	7.6	1.90	Nil.	0.95	83	8	2	1	..	..	1	4
ASHTON-IN-MAKERFIELD ..	6250	13379	15883	695	43.7	†19.2	4.65	0.75	3.14	192	308	134	64	10	19	53	28	
ASHTON-UNDER-LYNE (Borough)	1396	40462	44700	1189	26.5	†19.1	\$1.76	\$1.34	3.62	\$194	1049	241	98	27	51	358	244	
ASPILL	1905	8952	8952	291	32.5	18.8	3.79	1.22	3.68	154	169	45	44	2	10	44	24	
Astley Bridge	1768	6239	7000	115	21.8	12.7	1.28	1.23	2.00	130	67	15	4	1	2	24	21	
ATHERTON	2269	15833	15880	587	36.9	*17.6	α3.14	20.94	63.77	6197	322	117	33	8	21	85	53	

* In calculating the death-rate 2 deaths occurring within the District among persons not belonging thereto are excluded. † Including 1 death occurring outside the District of a person belonging thereto, and excluding 4 deaths occurring within the District among persons not belonging thereto.
 ‡ Excluding 193 Workhouse and Infirmary deaths of persons not belonging to the Borough. § Excluding Workhouse deaths of persons not belonging to the Borough. || Statistics for nine months ended 29th September, when the District was incorporated with the County Borough of Bolton. ¶ Excluding 44 Workhouse deaths of persons not belonging to the District, and including 2 deaths occurring outside the District among persons belonging thereto. α Including 2 deaths occurring outside the District of persons belonging thereto, and excluding 2 deaths occurring within the District among persons not belonging thereto. b Excluding deaths not belonging to the District.

TABLE I.—Continued.

URBAN SANITARY DISTRICTS.	Area in Statute Acres.	Population at all ages.		Annual Rates per 1000 of estimated population.					Rate of Infant Mortality measured by the proportion of deaths under 1 yr. to 1000 births.	Mortality from all causes at subjoined ages.							
		Census, 1891.	Estimate to middle of 1898.	Registered Births.	Birth- rate.	Death- rate.	Phthisis Death- rate.	Respi- ratory Death- rate.		Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.		
AUDENSHAW	1165	6547	7447	205	27.5	14.5	0.40	1.20	4.16	117	108	24	8	4	8	44	20
Bacup (Borough)	6400	23498	24400	589	24.1	17.2	0.98	1.02	4.17	122	422	72	41	21	34	163	91
BARROWFORD	1368	4500	5700	141	24.7	15.4	2.45	0.87	3.50	177	88	25	13	8	6	15	21
BILLINGE	4591	3996	4200	133	31.6	18.8	Nil.	1.19	3.09	142	79	19	4	1	3	18	34
BIRKDALE	2214	12387	15000	333	22.2	12.6	0.40	1.00	1.60	141	190	47	11	3	2	66	61
BLACKPOOL (Borough) ..	3495	23846	45414	1260	27.7	*13.8	†2.46	†0.99	†2.53	772	224	224	64	26	44	264	150
BLACKROD	2388	4021	3900	121	31.0	15.1	3.58	Nil.	1.79	190	59	23	10	1	4	7	14
BRIERFIELD	1000	5888	8000	225	28.1	14.1	2.00	1.12	2.62	200	113	45	17	5	5	26	15
CARNFORTH	1459	2680	2850	78	27.3	8.4	Nil.	0.35	1.40	76	24	6	4	1	1	6	6
CASTLETON	2399	5500	7700	179	23.2	†10.7	§1.03	0.90	§2.20	134	92	24	10	5	4	30	19
CHADDERTON.....	3080	22087	25500	688	26.9	17.2	2.27	0.94	3.68	180	439	124	66	20	24	141	64
Childwall.....	786	204	212	3	14.1	Nil.	Nil.	Nil.	Nil.	Nil.	..	..	..	..	..	..	..
CHORLEY (Borough)	3614	23082	26300	799	30.3	18.4	1.25	1.02	2.20	164	486	131	44	18	22	170	101
CHURCH.....	528	5870	6600	177	26.8	14.6	2.57	0.15	3.03	135	97	24	8	7	7	39	12
CLAYTON-LE-MOORS.....	1058	7155	9000	239	26.5	17.3	2.55	1.44	2.22	192	156	46	22	7	5	44	32

* Excluding deaths of 143 visitors not belonging to the Borough, and including 19 deaths in Public Institutions outside the Borough of persons belonging thereto.
† Excluding deaths of visitors.
‡ Excluding 9 deaths occurring within the District among persons not belonging thereto.
§ Excluding deaths of persons not belonging to the District.

URBAN SANITARY DISTRICTS.	Population at all ages.			Annual Rates per 1000 of estimated population.					Rate of Infant Mortality measured by the proportion of deaths under 1 yr. to 1000 births.	Mortality from all causes at subjoined ages							
	Area in Statute Acres.	Consens. 1891.	Estimated to middle of 1898.	Registered Births.	Birth Rate.	Death Rate.	Death Rate from the seven principal Zymotic Diseases.	Phthisis Death Rate.		Respi- ratory Death Rate.	1 under 1 yr.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	
CLITHEROE (Borough)	2381	10819	11500	289	25.1	15.2	1.13	1.21	2.08	138	175	40	21	2	8	54	50
COLNE (Borough).....	5330	16774	25000	716	28.6	12.8	1.76	1.08	2.80	157	320	113	40	11	17	89	50
CROMPTON	2864	12901	14000	393	28.0	20.0	2.42	0.64	4.93	190	284	75	53	10	15	63	68
CROSTON	2162	2034	2195	61	27.7	15.4	Nil.	1.82	2.73	98	34	6	3	4	3	7	11
DALTON-IN-FURNESS.....	7223	13300	13300	424	31.8	*15.4	†0.67	0.97	2.40	120	201	51	16	3	10	59	62
DARWEN (Borough)	5919	34192	37500	1131	30.1	16.8	2.10	0.70	3.14	175	632	199	79	22	27	171	131
DENTON.....	2593	13993	15069	432	28.6	15.0	1.06	1.26	1.72	182	227	79	18	8	15	70	37
DROYLSDEN	1144	9481	10500	302	28.7	14.8	2.19	0.47	2.95	178	156	54	17	6	4	48	27
ECCLLES (Borough)	2008	29606	35000	932	26.6	†16.5	§3.22	1.17	†2.54	175	589	164	60	17	24	186	138
FAIRSWORTH	1073	10425	13500	420	31.1	• 16.8	• 1.40	• 1.11	• 2.66	161	211	68	28	5	8	57	45
FARNWORTH	1502	23758	25000	787	31.4	618.4	63.08	1.04	3.24	245	466	193	51	18	41	105	58
FLEETWOOD	2848	9274	13500	411	30.4	15.3	2.22	0.74	1.92	192	207	79	19	3	14	63	29

* Including 6 deaths occurring outside the District among persons belonging thereto, and excluding 1 death occurring within the District of a person not belonging thereto.

† Including 1 death occurring outside the District of a person belonging thereto.

‡ Including 25 deaths occurring outside the District among persons belonging thereto, and excluding 33 deaths occurring within the District of persons not belonging thereto.

§ Including 16 deaths occurring outside the District among persons belonging thereto, and excluding 1 death occurring within the District of a person not belonging thereto.

• Including 16 deaths occurring outside the District among persons belonging thereto. Excluding deaths of persons not belonging to the District.

• Including 4 deaths in hospital of persons not belonging to the District.

TABLE I.—Continued.

URBAN SANITARY DISTRICTS.	Area in Statute Acres.	Population at all ages.		Registered Births.	Annual Rates per 1000 of estimated population.				Rate of Infant Mortality measured by the proportion of deaths under 1 yr. to 1000 births.	Mortality from all causes at subjoined ages.						
		Census, 1891.	Estimate to middle of 1898.		Birth Rate.	Death Rate.	Death Rate from the seven principal Diseases.	Phthisis Death Rate.		Respi- ratory Death Rate.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.
FULWOOD	2117	*2250	*2690	112	†18·2	‡11·8	§Nil.	||1·11	§0·37	196	19	2	3	8	96	68
GARSTON	1625	13444	17000	485	28·5	15·4	2·64	1·00	3·47	263	91	44	10	10	72	36
GOLBORNE.....	1679	6502	7000	228	32·5	14·5	1·71	0·42	2·71	131	30	6	4	10	26	26
GORTON	1133	15215	24000	856	35·6	||20·7	¶1·33	¶1·20	¶3·25	242	203	83	16	23	100	40
GRANGE.....	1160	1733	1733	22	12·6	11·5	1·73	||2·30	||Nil.	90	28	2	1	5	13	6
(GREAT CROSEY.....	1768	6400	7654	138	18·0	8·2	0·52	0·78	1·30	108	63	15	6	3	24	12
GREAT HARWOOD.....	2863	9073	12000	336	28·0	15·5	1·00	0·91	2·16	175	186	59	18	7	63	29
HASLINGDEN (Borough)...	7493	18225	19176	483	25·2	17·4	2·13	1·19	3·70	229	335	111	39	9	119	42
HAYDOCK	2409	6535	8050	299	37·1	18·6	||3·85	0·99	2·23	167	159	51	19	8	46	25
HEATON NORRIS.....	1638	7164	9200	145	15·7	||11·0	||1·30	0·54	||2·17	144	108	21	9	5	37	29
HEYWOOD (Borough)	3496	23185	25671	544	21·1	18·7	2·18	2·33	4·24	233	482	127	51	15	155	101

* Excluding population of Public Institutions.

† Excluding 63 in Public Institutions.

‡ Excluding 143 Workhouse deaths, 6 deaths in Barracks, 14 deaths in Convent, and 1 death in Orphanage.

§ Excluding Public Institutions.

|| Including 29 deaths occurring outside the District among persons belonging thereto.

¶ Including 6 deaths occurring outside the District among persons belonging thereto.

|| Including 15 deaths occurring within the District of persons not belonging thereto.

¶ Including 4 deaths occurring outside the District among persons belonging thereto.

|| Including 6 deaths occurring outside the District.

¶ Including 1 death not belonging to the within the District among persons not belonging thereto.

|| Including 2 deaths occurring outside the District among persons belonging thereto.

|| Including one death occurring outside the District of a person belonging thereto, and excluding 3 deaths occurring within the District of persons not belonging thereto.

URBAN

SANITARY DISTRICTS.

SANITARY DISTRICTS.	Area in Statute Acres.	Population at all ages.		Registered Births.	Annual Rates per 1000 of estimated population.				Rate of Infant Mortality measured by the proportion of deaths under 1 yr. to 1000 births.	Mortality from all causes at subjoined ages ^a							
		Census, 1891.	Estimate to middle of 1908.		Birth Rate.	Death Rate.	Death Rate from the seven principal Zymotic Diseases.	Phthisis Death Rate.		Respi- ratory Death Rate.	1 year under 1	1 and under 5	5 and under 15	15 and under 25	25 and under 65 and upwards		
Hindley	2611	18973	22038	828	37.5	20.6	3.22	0.86	4.85	183	455	152	81	25	19	119	59
Horwich	3254	12850	15400	518	33.6	13.4	10.97	0.77	2.66	150	205	78	26	3	7	62	29
Hurst	754	6772	6920	232	33.5	19.6	1.01	1.15	3.75	181	136	42	15	5	3	47	24
HUYTON-WITH-ROBY	2878	4625	4625	103	22.2	11.0	0.86	0.21	3.02	155	51	16	6	2	..	15	12
INCE-IN-MAKERFIELD	2320	19255	21736	808	37.1	19.7	2.43	0.73	3.45	204	429	165	86	26	24	95	33
IRLAM	4634	4653	5000	133	26.6	13.6	3.00	1.00	1.40	150	68	20	8	5	2	26	7
Kearsley	996	7993	9600	295	30.7	16.6	2.29	0.83	3.54	196	160	58	13	5	11	47	26
KIRKHAM	857	4003	4094	122	29.7	16.3	0.97	0.22	3.93	114	92	17	12	2	4	35	22
LANCASTER (Borough) ..	1680	31034	39427	1023	27.9	14.0	2.07	0.98	2.65	158	758	171	69	23	45	308	142
LAITHAM AND BURSCOUGH..	13654	6798	7583	230	30.3	13.9	1.05	0.52	2.37	152	106	35	15	..	3	27	26
LEES	202	3877	4129	102	24.7	16.4	0.96	1.69	3.87	196	69	20	11	2	1	20	15
LEIGH	6347	28702	37000	1288	34.8	18.6	3.51	1.45	3.32	199	646	257	102	16	32	160	79
LEVENSHULME	605	5506	10000	236	23.6	11.2	0.60	1.40	1.80	84	108	20	11	10	7	42	15

^a Including 2 deaths occurring outside the District among persons belonging thereto, and excluding 3 deaths occurring within the District among persons not belonging thereto.

^b Including 25 Workhouse deaths of persons not belonging to the District, and excluding 2 deaths occurring outside the District among persons belonging thereto, and excluding 3 deaths occurring within the District among persons not belonging thereto.

^c Including 45 deaths occurring outside the District among persons belonging thereto, and excluding 1 death occurring within the District of a person not belonging to the District.

^d Including 25 Workhouse deaths of persons not belonging to the District, and excluding 2 deaths occurring outside the District among persons belonging thereto, and excluding 3 deaths occurring within the District among persons not belonging thereto.

TABLE I.—Continued.

URBAN SANITARY DISTRICTS.	Area in Statute Acres.	Population at all ages.		Registered Births.	Annual Rates per 1000 of estimated population.						Rate of Infant Mortality measured by the proportion of deaths under 1 yr. to 1000 births.		Mortality from all causes at subjoined ages.					
		Census, 1891.	Estimate to middle of 1898.		Birth Rate.	Death Rate.	Death Rate from the seven principal Zymotic Diseases.	Phthisis Death Rate.	Respi- ratory Death Rate.	At all Ages.	Under 1 year.	1 and 2.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.		
LEYLAND	3651	5970	6500	158	24·3	*14·7	0·92	1·38	2·00	202	99	32	11	1	6	30	19	
LITHERLAND	855	4440	9215	314	34·0	15·9	3·36	0·75	2·16	187	147	59	28	7	4	39	10	
LITTLEBOROUGH.....	7736	10878	11850	288	24·3	12·7	0·84	0·50	2·02	100	151	29	10	6	11	63	32	
LITTLE CROSBY.....	1811	641	641	8	12·4	10·9	Nil.	3·12	3·12	125	7	1	..	..	..	5	1
LITTLE HULTON	1706	6697	7256	222	30·5	15·8	1·92	0·82	4·27	171	115	38	18	4	4	35	16	
LITTLE LEVER	806	5168	5700	160	28·0	†17·8	4·73	1·05	2·45	225	99	36	20	5	2	23	13	
LITTLE WOOLTON.....	1387	1131	1131	23	20·3	†9·7	1·76	0·88	1·76	130	12	3	1	..	2	4	2	
LONGRIDGE	2858	4101	4500	125	27·7	16·4	1·11	2·00	3·77	200	74	25	3	1	3	28	14	
LYTHAM	2238	4656	5950	116	19·5	§12·9	0·67	0·84	||2·01	189	87	23	3	4	3	18	36	
MIDDLETON (Borough)....	4741	22162	25600	679	26·5	¶16·2	2·26	1·25	3·32	166	396	113	38	16	24	130	75	
MILNROW	5183	8046	9660	172	17·8	13·1	0·72	1·13	2·58	139	127	24	14	4	8	42	35	
MORECAMBE	1753	6476	11071	275	24·8	α15·6	62·16	60·63	62·25	6167	232	56	19	7	13	79	58	
Mossley (Borough)	3929	14242	14785	370	25·0	17·2	2·63	1·48	3·17	151	255	56	39	11	12	79	58	
Moss Side	420	23833	27000	453	16·7	11·2	1·14	0·92	1·59	158	304	72	18	8	14	117	75	

* Excluding 3 deaths occurring within the District among persons not belonging thereto. † Including 3 deaths occurring outside the District among persons belonging thereto. ‡ Excluding 1 death of a person not belonging to the District. § Excluding deaths of 10 visitors. || Excluding deaths of visitors. ¶ Including 22 deaths occurring outside the District among persons belonging thereto, and excluding 1 death occurring within the district of a person not belonging thereto. α Excluding deaths of 59 visitors. b Excluding deaths of visitors.

URBAN SANITARY DISTRICTS.	Area in Statute Acres.	Population at all ages.		Annual Rates per 1000 of estimated population.					Rate of Infant Mortality measured by the proportion of deaths under 1 yr. to 1000 births.						Mortality from all causes at subjoined ages.				
		Census, 1901.	Estimate to middle of 1898.	Registered Births.	Birth Rate.	Death Rate.	Death Rate from the seven Principal Zymotic Diseases.	Phthisis Death Rate.	Respi- ratory Death Rate.	At all ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.			
MUCH WOOLTON	970	4545	4545	131	28.8	11.6	0.66	1.76	1.76	114	53	15	2	1	4	19	12		
NELSON (Borough)	3395	22700	32000	884	27.6	12.3	0.96	0.71	2.56	149	396	132	52	23	23	111	55		
NEWTON-IN-MAKERFIELD.	3103	12861	14816	536	36.1	15.6	1.34	1.14	2.49	156	232	84	23	10	7	73	35		
NORDEN	6033	3955	4000	76	19.0	14.7	1.25	0.50	1.50	92	59	7	9	1	3	17	22		
ORMSKIRK	573	6298	6797	229	33.6	*20.3	2.64	†0.14	45.14	†126	191	30	22	9	8	65	57		
Orrell.....	1618	4914	5140	204	39.6	19.8	2.72	1.16	3.69	137	102	28	23	3	8	23	17		
OSWALDTWISTLE	4883	13293	15500	465	30.0	14.3	1.03	0.45	3.41	156	222	73	33	6	10	63	37		
PADHAM	976	11311	13700	329	24.0	14.8	1.02	0.58	3.28	173	204	57	19	14	6	69	39		
PEMBERTON	2894	18400	21758	843	38.7	19.6	1.93	0.87	3.95	187	427	158	78	13	20	95	63		
PRESCOT.....	304	6745	8000	288	36.0	17.0	2.62	0.62	2.12	184	136	53	25	4	3	29	22		
PRESTWICH	3174	8384	9290	210	22.6	†13.7	§1.29	§1.07	2.26	166	117	35	12	2	5	36	27		
RADCLIFFE	3110	20020	26000	729	28.0	16.4	2.50	0.84	3.26	171	428	125	58	16	18	117	94		
RAINFORD	5872	3472	3769	88	23.3	16.7	0.53	2.12	3.18	102	63	9	8	2	2	26	16		
RAMSBOTTOM	6325	16725	17445	383	21.3	13.1	1.08	1.26	2.69	125	229	48	28	5	6	93	49		
RAWTENSTALL (Borough).	9528	29507	30500	811	26.5	16.7	1.14	• 1.11	• 3.40	156	569	127	48	27	23	203	141		

* Excluding 53 Workhouse deaths of persons not belonging to the District.

† Including 11 deaths occurring outside the District among persons belonging thereto.

‡ Excluding 57 Workhouse deaths of persons not belonging to the District.

§ Excluding Workhouse deaths.

• Including 11 deaths occurring outside the District among persons belonging thereto.

• Excluding Workhouse deaths.

TABLE I.—Continued.

URBAN SANITARY DISTRICTS.	Area in Statute Acres.	Population at all ages.		Registered Births.	Annual Rates per 1000 of estimated population.					Rate of Infant Mortality measured by the proportion of deaths under 1 yr. to 1000 births.	Mortality from all causes at subjoined ages.					
		Census, 1891.	Estimate to middle of 1898.		Birth Rate.	Death Rate.	Death Rate from the seven principal Diseases.	Phthisis Death Rate.	Respi- ratory Death Rate.		At All Ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 55.	55 and upwards.
REDDISH.....	1541	6854	8100	214	26.4	13.0	2.09	0.86	2.46	126	27	14	4	7	39	15
RISHTON.....	2951	6056	8000	199	24.8	13.5	2.37	0.75	1.25	155	31	17	7	8	24	21
ROYTON	2112	13395	14800	374	25.2	16.4	2.83	0.74	3.64	133	50	37	14	14	81	48
ST. ANNES-ON-THE-SEA..	3212	2588	5340	98	18.3	*9.3	0.18	+0.74	+1.49	+153	17	3	1	4	21	15
Skelmersdale	1941	6720	6800	211	31.0	19.5	1.17	1.61	7.05	213	45	21	7	9	36	15
SOUTHPORT (Borough) ..	7526	41406	43678	979	19.7	+13.2	§0.78	§1.20	§2.17	§133	135	50	21	42	269	203
STANDISH-WITH- LANGTREE.....	3264	5416	6000	227	37.8	15.8	1.83	0.50	2.83	149	34	12	7	3	23	13
STRETTFORD	3254	21751	27110	567	20.9	12.6	1.36	1.10	1.91	128	74	33	8	11	116	87
SWINTON AND PENDLEBURY.....	2222	21637	27400	815	30.7	16.6	2.27	1.79	63.75	6192	168	73	32	17	138	68
TRAWDEN	6807	2354	2500	82	32.8	14.8	2.40	1.60	3.20	170	14	6	..	2	11	4
WURTON	17322	7100	12662	205	24.2	12.0	1.64	1.27	2.70	143	29	5	3	4	32	28

* Excluding 11 deaths of visitors.

† Excluding deaths of visitors.

‡ Excluding the deaths of 95 persons not belonging to the Borough, and including 31 deaths occurring outside the Borough among persons belonging thereto.

§ Excluding deaths of persons not belonging to the Borough, and including deaths occurring outside the Borough among persons belonging thereto.

¶ Including 17 deaths occurring outside the District among persons belonging thereto, and excluding 10 deaths occurring within the District among persons not belonging thereto.

* Including 3 deaths occurring outside the District among persons belonging thereto.

† Including 55 deaths occurring in Public Institutions, and including 19 deaths occurring outside the District among persons belonging thereto.

‡ Excluding deaths in Public Institutions.

§ On September 30th, 1898, this District was increased by 12,379 acres and a population of 5,562, by the addition of Belmont, Harwood, and Edgworth, under the Bolton, Farnon, and Westhoughton Extension Act, 1898. All averages include the added Districts.

URBAN SANITARY DISTRICTS.	Area in Statute Acres.	Population at all ages.		Annual Rates per 1000 of estimated population.						Rate of Infant Mortality measured by the proportion of deaths under 1 yr. to 1000 births.	Mortality from all causes at subjoined ages.						
		Census, 1891.	Estimate to middle of 1898.	Registered Births.	Birth Rate.	Death Rate.	Death Rate from the seven Principal Zymotic Diseases.	Phthisis Death Rate.	Respi- ratory Death Rate.		Under 1 year.	1 and 5 under 15.	5 and 15 under 25.	25 and under 45 upwards.			
TYLDESLEY-WITH- SHAKERLEY	2489	12891	14500	507	34.9	16.9	3.31	0.75	3.03	177	216	90	41	11	65	28	
ULVERSTON	3120	10015	10015	263	26.2	11.9	0.09	1.19	12.39	68	147	18	10	7	5	57	50
UPHOLLAND	4655	4443	4927	143	29.0	19.6	3.04	1.01	5.88	202	97	29	17	7	7	22	15
URMSTON	992	4042	6800	149	21.9	12.6	3.82	0.88	1.61	93	80	14	20	9	..	19	18
WALTON-LE-DALE	4682	10556	11733	351	29.9	16.1	1.70	1.10	2.64	150	189	53	19	6	8	68	35
WARDLE	3300	3955	4150	90	21.6	10.8	0.24	0.48	1.44	88	213	16	9	1	4	102	81
WARRINGTON (Borough)..	3115	52743	62770	2358	37.5	17.8	3.23	1.09	13.53	168	1156	399	178	45	15	335	154
WATERLOO-WITH- SEAFORTH	1524	17328	23058	603	26.1	12.3	1.86	1.12	2.03	159	285	96	29	14	15	82	49
WESTHOUGHTON	5554	11077	12713	441	34.6	15.2	2.28	0.87	3.22	131	194	58	32	11	14	55	24
WHITEFIELD	1398	5912	6329	176	27.8	16.7	3.63	0.31	2.37	176	106	31	8	6	5	28	28
WHITWORTH	6200	9766	10150	245	24.1	16.8	0.98	1.87	3.44	122	171	30	13	12	13	71	32

* Excluding 27 deaths occurring within the District among persons not belonging to the District.

† Including 7 deaths occurring outside the District among persons belonging thereto, and excluding 1 death occurring within the District of a person not belonging thereto.

‡ Including 168 deaths in the Drarnley Workhouse of persons not belonging outside the District among persons belonging thereto.

§ Excluding 35 deaths occurring within the District among persons not belonging thereto, and including one death occurring outside the District of a person belonging thereto.

a Excluding deaths of persons not belonging to the District.

b Excluding deaths of persons not belonging to the District.

c On September 30th, 1898, this District was increased by 1,213 acres, and a population of 800, by the addition of a portion of Over Hulton, under the Bolton, Turton, and Westhoughton Extension Act, 1898. The statistics have been calculated on the old population.

TABLE I.—Continued.

URBAN SANITARY DISTRICTS.	Area in Statute Acres.	Population at all ages.		Annual Rates per 1000 of estimated population.					Rate of Infant Mortality measured by the proportion of deaths under 1 yr. to 1000 births.	Mortality from all causes at subjoined ages.							
		Census, 1801.	Estimate to middle of 1898.	Registered Births.	Birth- rate.	Death- rate.	Death- rate from the seven principal Zymotic Diseases.	Phthisis Death- rate.		Respi- ratory Death- rate.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	
WIDNES (Borough).....	3039	30011	32000	1084	33·8	16·8	1·15	0·37	4·71	184	539	200	51	19	23	162	84
WITHINGTON.....	5728	23838	30000	593	19·7	*12·9	†1·06	†0·83	†1·80	†138	984	114	45	21	42	461	301
WITHNELL.....	3620	2875	3500	77	22·0	11·7	0·57	0·57	1·14	116	41	9	6	2	1	13	10
WORSLEY	5584	11036	12953	313	24·1	12·5	1·23	0·77	1·92	150	163	47	9	4	8	58	37

* Excluding 603 deaths which occurred in the Chorlton Union Workhouse among persons not belonging to the District, and including 6 deaths which occurred outside the District among persons belonging thereto. † Excluding Workhouse deaths not belonging to the District, and including 5 deaths occurring in the Monsall Hospital of persons belonging to the District. ‡ Excluding Workhouse deaths not belonging to the District.

TABLE II.—DEATHS registered during the year, 1898, in the URBAN SANITARY DISTRICTS of the Administrative County of Lancaster, classified according to Diseases and Localities, and distinguishing Deaths of Children under five years of age.

URBAN SANITARY DISTRICTS.		Mortality from subjoined causes, distinguishing Deaths of Children under five years of age.																					
	Age at Death.	Small-pox.	Measles.	Scarlatina.	Diphtheria.	Membranous Croup.	Whooping Cough.	Continued Fevers.					Cholera.	Rheumatic Fever.	Erysipelas.	Pyæmia.	Puerperal Fever.	Influenza.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Injuries.	All other Diseases.
								Typhus.	Euteric or Typhoid.	Other or doubtful.	Diarrhœa or Dysentery.												
ADAM	Under 5 .....	..	3	2	..	..	..	..	..	16	..	..	1	1	..	..	..	1	6	14	7	2	45
	5 & upwards..	..	1	2	..	..	..	..	..	1	..	..	..	..	1	..	..	..	5	5	7	8	11
ACCINGTON (Borough).....	Under 5 .....	..	30	7	4	1	7	..	..	29	..	1	1	1	..	..	..	2	29	43	46	3	163
	5 & upwards..	..	..	4	3	2	1	..	..	1	..	6	2	2	..	..	..	14	29	72	46	12	166
ADLINGTON	Under 5 .....	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	5	4	..	..	16
	5 & upwards..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	8	4	1	16
ALLERTON	Under 5 .....	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	1
	5 & upwards..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	2
ASHTON-IN-MAKERFIELD	Under 5 .....	..	17	6	..	..	18	..	..	1	..	26	..	..	..	..	1	2	33	17	16	11	94
	5 & upwards..	..	1	..	..	..	..	..	..	4	..	1	..	1	..	2	1	10	17	16	11	46	
ASHTON-UNDER-LAYNE (Borough)....	Under 5 .....	..	3	2	..	2	17	..	..	39	..	..	..	..	1	2	..	83	138	73	28	6	209
	5 & upwards..	..	..	1	1	..	..	..	..	3	..	8	2	..	2	2	..	83	138	73	28	357	
ASPULL	Under 5 .....	..	14	4	..	2	3	..	..	6	..	..	..	..	..	..	..	3	17	2	1	37	
	5 & upwards..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	16	6	2	41	
*Astley Bridge	Under 5 .....	..	..	1	..	..	..	..	..	3	..	..	..	..	..	..	..	2	4	7	..	..	9
	5 & upwards..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	5	7	7	..	..	26
ATHERTON	Under 5 .....	..	5	..	..	4	7	..	..	29	..	..	..	..	..	..	..	..	34	..	2	74	
	5 & upwards..	..	..	..	1	..	..	..	..	4	..	3	2	..	1	1	..	18	30	23	9	72	

* Statistics for nine months ended 29th September, when the district was incorporated with the County Borough of Bolton.

TABLE II.—Continued.

URBAN SANITARY DISTRICTS.		Age at Death.	Mortality from subjoined causes, distinguishing Deaths of Children under five years of age.																				
			Small-pox.	Measles.	Scarlatina.	Diphtheria.	Membranous Croup.	Whooping Cough.	Continued Fever.				Cholera.	Rheumatic Fever.	Erysipelas.	Pyæmia.	Puerperal Fever.	Influenza.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Injuries.	All other Diseases.
		Under 5 5 & upwards..	2	..	..	..	..	9	7	8	2	21
		Under 5 5 & upwards..	..	1	1	1	6	9	1	4	..	..	3	2	..	1	..	5	25	27	30	4	59
		Under 5 5 & upwards..	..	1	5	3	1	1	..	..	..	..	1	..	..	..	..	..	5	8	2	..	18
		Under 5 5 & upwards..	5	4	10	1	18
		Under 5 5 & upwards..	1	1	..	1	..	..	4	..	1	..	..	1	15	8	1	..	43
		Under 5 5 & upwards..	..	7	3	1	2	2	..	16	..	..	93	8	..	3	5	..	51	56	3	3	117
		Under 5 5 & upwards..	..	5	..	1	1	1	..	1	..	..	6	..	..	..	..	..	..	4	7	..	15
		Under 5 5 & upwards..	..	7	..	..	1	1	..	..	..	..	8	..	..	..	..	1	8	15	5	2	27
		Under 5 5 & upwards..	1	..	1	2	6	1	1	29
		Under 5 5 & upwards..	1	2	1	..	8
		Under 5 5 & upwards..	2	1	..	1	..	3	..	..	6	..	..	..	1	1	6	8	5	1	14
		Under 5 5 & upwards..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10	..	2	29

URBAN SANITARY DISTRICTS.		Mortality from subjoined causes, distinguishing Deaths of Children under five years of age.																						
	Age at Death.	Small-pox.	Measles.	Scarlatina.	Diphtheria.	Membranous Croup.	Whooping Cough.	Continued Fever.					Cholera.	Rheumatic Fever.	Erysipelas.	Pyæmia.	Puerperal Fever.	Influenza.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Injuries.	All other Diseases.	
								Typhus.	Enteric or Typhoid.	Other or doubtful.	Diarrhea or Dysentery.													
CRADDEPTON.....	Under 5 5 & upwards..	..	13	3	1	..	7	..	5	..	18 11	5	24	41 53	3 31	1 12	103 104
Childwall	Under 5 5 & upwards..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	Nil. Nil.
CHORLEY (Borough)	Under 5 5 & upwards..	..	..	3	1	2	..	..	1	..	13 5	..	..	..	..	..	..	7	27	19 39	1 32	2 16	126 171
CHURCH	Under 5 5 & upwards..	..	..	..	..	1	1	..	6	1	9	..	..	1	..	..	..	..	1	8	..	..	14 39
CLAYTON-LE-MOORS	Under 5 5 & upwards..	..	4	7	1	1	..	..	2	..	4	..	..	1	..	..	1	2	1	9 12	2 7	1 6	38 40
CULPIEROE (Borough)	Under 5 5 & upwards..	..	3	..	1	1	..	..	1	..	6	..	..	..	..	..	..	1	14	15 19	..	..	36 60
COLNE (Borough)	Under 5 5 & upwards..	..	..	7	..	6	10	..	1	..	17	..	..	..	..	..	1	..	2	33 37	2 23	7 11	68 61
CROMPTON	Under 5 5 & upwards..	..	17	4	1	3	3	..	1	..	4	..	..	2	..	..	2	..	1	26 43	..	1 8	67 73
CROSTON	Under 5 5 & upwards..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	1	..	5	..	..	2 16
DALTON-IN-FURNESS	Under 5 5 & upwards..	..	1	1	1	1	..	..	1	..	3	..	..	..	..	..	..	..	..	12 20	..	..	48 72

TABLE II.—Continued.

URBAN SANITARY DISTRICTS.	Age at Death.	Mortality from subjoined causes, distinguishing Deaths of Children under five years of age.																				
		Small-pox.	Measles.	Scarlatina.	Diphtheria.	Membranous Croup.	Whooping Cough.	Continued Fevers.			Cholera.	Rheumatic Fever.	Erysipelas.	Pyæmia.	Puerperal Fever.	Influenza.	Phtthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Injuries.	All other Diseases.	
								Typhus.	Enteric or Typhoid.	Other or doubtful.	Diarrhœa or Dysentery.											
DARWEN (Borough)	Under 5 5 & upwards..	..	25	1	1	3	..	..	6	..	42	..	..	..	..	5	..	27	58	1	2	145
		..	2	..	..	3	..	..	..	..	2	..	..	..	..	..	..	..	60	47	4	187
DENTON	Under 5 5 & upwards..	..	..	1	1	..	1	..	3	..	10	..	..	1	..	..	..	18	13	1	2	68
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13	24	8	62
DROYLSDEN	Under 5 5 & upwards..	..	1	..	..	..	1	..	1	..	16	..	..	..	..	..	..	5	9	..	1	42
		..	1	1	..	..	..	..	..	..	2	..	..	..	..	..	..	..	22	3	3	48
ECCLES (Borough)	Under 5 5 & upwards..	..	5	1	2	..	5	..	6	..	71	..	..	1	..	..	2	4	32	1	2	99
		..	..	..	..	..	..	..	..	..	8	..	..	..	..	..	8	40	63	31	18	190
FAILSWORTH	Under 5 5 & upwards..	..	..	..	..	..	3	..	4	..	5	..	..	1	..	..	6	5	15	4	2	55
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	9	20	15	7	56
FARNWORTH	Under 5 5 & upwards..	..	1	..	..	..	7	..	16	..	50	..	..	1	..	..	..	26	33	..	..	152
		..	..	..	..	..	..	..	..	..	7	..	..	..	..	..	1	..	48	14	9	101
FLEETWOOD	Under 5 5 & upwards..	..	1	..	..	..	9	..	3	..	17	..	..	..	..	..	..	3	14	1	1	52
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	7	12	22	19	45
FULWOOD	Under 5 5 & upwards..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	17	2	..	2	17
		..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	32	23	2	98
GARSTON	Under 5 5 & upwards..	..	13	1	1	2	4	..	1	..	20	..	..	..	..	..	..	1	32	..	..	61
		..	2	..	1	..	..	..	..	..	2	..	..	..	..	..	..	16	27	15	11	49
GOLBORNE	Under 5 5 & upwards..	..	1	..	..	..	..	..	1	..	10	..	..	1	..	..	..	..	1	..	..	23
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	18	5	3	33

Mortality from subjoined causes, distinguishing Deaths of Children under five years of age.

URBAN SANITARY DISTRICTS.		Age at Death.	Mortality from subjoined causes, distinguishing Deaths of Children under five years of age.																				
			Small-pox.	Measles.	Scarlatina.	Diphtheria.	Membranous Croup.	Whooping Cough.	Typhus.	Enteric or Typhoid.	Other or doubtful.	Diarrhoea or Dysentery.	Cholera.	Rheumatic Fever.	Erysipelas.	Pæmia.	Puerperal Fever.	Influenza.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Injuries.	All other Diseases.
GORTON	Under 5	5 & upwards..	..	16	2	..	1	7	..	..	104	..	3	..	..	..	1	2	25	46	1	4	110
	..	..	..	..	..	..	..	..	14	..	4	..	..	1	..	..	..	..	28	22	11	65	
GRANGE	Under 5	5 & upwards..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	1	7	1	4	2	9
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
GREAT CROSBY.....	Under 5	5 & upwards..	..	..	..	..	1	..	..	..	4	..	..	..	..	..	..	..	1	5	7	4	10
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	5	..	..	21
GREAT HARWOOD.....	Under 5	5 & upwards..	..	6	..	2	2	..	3	..	..	..	..	..	..	..	..	..	1	10	1	2	53
	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10	16	13	9	57
HASLINGDEN (Borough)	Under 5	5 & upwards..	..	14	..	2	4	..	1	..	14	..	4	..	..	..	..	1	3	37	1	3	70
	..	..	..	..	..	..	..	..	6	..	..	..	..	..	..	..	..	3	20	34	33	6	75
HAYDOCK	Under 5	5 & upwards..	..	7	..	2	1	2	1	..	8	..	..	1	..	..	..	..	1	11	..	1	36
	..	..	..	1	1	..	..	..	4	..	3	..	..	..	..	..	1	5	7	7	4	13	41
HEATON NORRIS	Under 5	5 & upwards..	..	..	1	2	..	..	..	..	4	..	1	..	..	..	..	..	1	4	..	..	18
	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..	1	4	15	8	3	40
HEYWOOD (Borough)	Under 5	5 & upwards..	..	9	2	..	..	9	..	..	30	..	7	..	..	..	..	1	19	14	3	3	58
	1	..	1	1	..	..	..	..	1	..	2	..	..	..	..	2	6	41	65	50	11	113	
Hindley.....	Under 5	5 & upwards..	..	3	2	..	..	14	1	..	34	..	..	1	..	..	..	..	1	44	2	2	130
	..	..	..	..	..	..	..	..	11	1	5	..	1	1	..	..	1	..	18	63	18	8	95
HORWICH	Under 5	5 & upwards..	..	1	1	1	..	5	1	..	3	..	2	..	..	..	..	..	1	17	..	2	72
	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	2	..	..	11	24	11	3	47

TABLE II.—Continued.

Mortality from subjoined causes, distinguishing Deaths of Children under five years of age.																							
URBAN SANITARY DISTRICTS.	Age at Death.	Small-pox	Measles.	Scarlatina.	Diphtheria.	Membranous (Croup.)	Whooping Cough.	Continued Fever.					Cholera.	Rheumatic Fever.	Erysipelas.	Pyæmia.	Puerperal Fever.	Influenza.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Injuries.	All other Diseases.
								Typhus.	Enteric or Typhoid.	Other or doubtful.	Diarrhea or Dysentery.												
HURST	Under 5 .....	..	..	..	1	..	..	..	..	3	..	..	..	..	..	..	..	..	..	11	..	1	41
	5 & upwards..	..	..	..	..	..	..	2	..	1	..	..	..	..	..	..	..	..	8	15	9	3	41
HUYTON-WITH-ROBY	Under 5 .....	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	7	1	..	11
	5 & upwards..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	7	5	..	15
INCE-IN-MAKERFIELD	Under 5 .....	..	4	1	2	2	9	..	..	15	..	..	2	1	..	..	..	..	..	38	2	5	173
	5 & upwards..	..	..	3	..	..	3	14	..	1	..	..	..	..	..	..	..	..	..	37	13	12	76
IRLAM	Under 5 .....	..	3	..	1	..	..	..	..	6	..	..	2	..	..	..	..	..	..	3	..	..	15
	5 & upwards..	..	1	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	7	..	19
<i>Kearsley</i>	Under 5 .....	..	..	..	..	..	3	..	..	9	..	..	..	..	..	..	..	..	..	17	..	1	41
	5 & upwards..	..	..	..	..	..	..	9	..	1	..	..	..	..	..	1	..	..	8	17	12	1	40
KIRKHAM	Under 5 .....	..	..	..	..	..	..	..	..	2	..	..	2	..	..	..	..	..	..	7	..	1	19
	5 & upwards..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	9	9	5	..	36
LANCASTER (Borough)	Under 5 .....	..	8	1	..	..	12	2	..	35	..	2	1	..	..	..	3	..	..	54	..	2	126
	5 & upwards..	..	..	..	..	..	1	16	2	5	..	..	..	..	..	..	..	..	63	82	80	8	255
LATHAM AND BRISCOUGH	Under 5 .....	..	..	..	3	..	..	..	..	5	..	..	..	..	..	..	..	2	..	9	..	4	27
	5 & upwards..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	4	9	14	2	22
LEES	Under 5 .....	..	2	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	10	..	..	17
	5 & upwards..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	6	5	..	20
LEIGH	Under 5 .....	..	20	..	3	8	3	..	..	86	..	..	1	..	..	..	1	..	4	81	..	2	151
	5 & upwards..	..	..	1	..	1	..	15	..	2	..	2	2	..	..	..	1	5	50	42	22	10	134

Mortality from subjoined causes, distinguishing Deaths of Children under five years of age.

URBAN SANITARY DISTRICTS.		Mortality from subjoined causes, distinguishing Deaths of Children under five years of age.																			
	Age at Death.	Continued Fever.														Injuries.	All other Diseases.				
		Small-pox.	Measles.	Scarlatina.	Diphtheria.	Membranous Croup.	Whooping Cough.	Typhus.	Enteric or Typhoid.	Other or doubtful.	Diarrhoea or Dysentery.	Cholera.	Rheumatic Fever.	Erysipelas.	Pneumonia.			Puerperal Fever.	Influenza.	Phtisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.
LIVENSHEME	Under 5 5 & upwards..	..	..	..	..	1	..	..	1	..	8	..	1	..	..	..	..	14	7	1	19
LEYLAND	Under 5 5 & upwards..	..	..	..	1	..	..	..	1	..	3	..	..	..	..	..	..	2	9	..	31
LUTHERLAND.....	Under 5 5 & upwards..	..	1	..	1	..	6	..	1	..	21	..	..	..	..	..	1	2	11	..	28
LITTLEBOROUGH	Under 5 5 & upwards..	..	2	..	..	..	..	..	1	1	5	..	..	..	..	..	5	..	6	12	27
LITTLE CROSBY	Under 5 5 & upwards..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	12	3	43
LITTLE HULTON	Under 5 5 & upwards..	..	2	..	..	..	..	..	4	..	8	1	1	..	..	..	1	..	12	16	25
LITTLE LEVER	Under 5 5 & upwards..	..	3	1	..	..	..	..	2	..	16	..	..	..	..	..	3	1	15	4	17
LITTLE WOOLTON	Under 5 5 & upwards..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	5	..	16	4	65
LONGRIDGE	Under 5 5 & upwards..	..	..	..	..	..	2	..	1	2	..	..	..	..	..	..	..	..	1	..	1
LATHAM	Under 5 5 & upwards..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	1	..	12	7	14
		..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	9	5	7	20
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..	19
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	5	12	11	30

TABLE II.—Continued.

URBAN SANTARY DISTRICTS.		Age at Death.	Mortality from subjoined causes, distinguishing Deaths of Children under five years of age.																				
			Small-pox.	Measles.	Scarlatina.	Diphtheria.	Membranous Croup.	Whooping Cough.	Continued Fever.			Cholera.	Rheumatic Fever.	Erysipelas.	Pyæmia.	Puerperal Fever.	Influenza.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Injuries.	All other Diseases.	
MIDDLETON (Borough)	Under 5 & upwards..	12	1	1	1	1	1	3	33	..	..	..	..	..	..	1	1	..	32	1	2	67
		..	..	1	..	..	..	..	6	..	..	..	..	..	..	..	..	..	53	23	4	120
		2	..	..	..	2	..	..	1	1	..	1	..	..	..	..	3	..	8	7	2	23
		1	..	..	..	..	..	..	1	..	..	2	1	..	..	..	3	11	17	..	..	44
		1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10	20	..	40
MILNROW	Under 5 & upwards..	4	..	1	1	1	4	5	13	..	..	1	..	..	..	1	1	..	13	20	1	90
		..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	20	20	..	50
		..	..	1	1	..	..	..	7	..	..	..	..	..	..	..	4	2	14	23	1	68
		15	1	2	2	..	4	5	2	1	..	..	..	..	..	..	..	20	33	..	..	50
		2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	14	23	..	68
MORECAMBE	Under 5 & upwards..	3	1	..	1	..	1	3	17	..	1	1	..	..	..	..	6	1	12	30	1	52
		1	..	..	..	..	..	..	3	3	..	3	1	..	..	..	..	24	31	..	4	107
		..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	1	..	..	15
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	8	..	1	..	14
		1	1	8	15
Moss Side	Under 5 & upwards..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	3	8	..	..	..	14
		14
		14
		14
		14
MUCH WOOLTON	Under 5 & upwards..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	108
		2	3	14	2	..	8	..	4	23	38	28	7	106
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	108
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	108
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	108
NELSON (Borough).....	Under 5 & upwards..	2	..	..	..	1	..	2	14	1	1	..	..	..	..	1	7	1	19	18	2	65
		..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	16	18	18	8	51
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	65
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	65
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	65
NEWTON-IN-MAKERFIELD	Under 5 & upwards..	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	1	11	1	10
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	11	1	24
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10
NORDEN	Under 5 & upwards..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10
ORMSKIRK	Under 5 & upwards..	..	..	..	6	4	..	..	5	2	..	..	..	..	..	1	4	8	11	21	2	24
		..	..	..	5	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	2	24
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	24
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	24
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	24

Mortality from subjoined causes, distinguishing Deaths of Children under five years of age.

URBAN SANITARY DISTRICTS.	Age at Death.	Small-pox.	Measles.	Scarlatina.	Continued Fever.										All other Diseases.						
					Diphtheria.	Membranous Croup.	Whooping Cough.	Typhus.	Euteric or Typhoid.	Other or doubtful.	Diarrhoea or Dysentery.	Cholera.	Rheumatic Fever.	Erysipelas.		Pyæmia.	Fæbrile Fever.	Influenza.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Injuries.
Orrell	Under 5 .....	..	..	..	1	..	8	..	1	..	..	3	..	..	..	..	12	..	..	..	26
	5 & upwards..	..	..	1	..	..	..	..	..	..	..	..	1	..	..	..	7	6	3	..	26
Oswaldtwistle	Under 5 .....	..	..	..	1	1	..	..	1	..	..	8	..	..	..	..	26	2	4	..	63
	5 & upwards..	..	..	..	..	..	..	..	6	..	..	..	..	..	..	..	27	16	4	..	55
Padiham	Under 5 .....	..	..	5	1	..	..	..	..	..	..	3	..	..	..	..	15	..	..	..	52
	5 & upwards..	..	..	4	..	..	..	..	1	..	..	..	..	6	..	..	30	13	..	..	66
Pemberton	Under 5 .....	..	1	2	2	4	17	..	1	..	14	..	..	..	..	..	41	..	4	..	150
	5 & upwards..	..	..	..	..	..	..	..	4	..	1	..	..	1	2	..	45	31	12	..	74
Prescot	Under 5 .....	..	..	6	..	1	8	..	..	..	3	..	..	..	..	..	11	..	1	..	48
	5 & upwards..	..	..	1	..	..	..	..	2	1	..	..	..	..	..	..	6	6	2	..	34
Prestwich	Under 5 .....	..	3	1	..	..	..	..	..	..	8	..	..	..	..	..	7	1	1	..	29
	5 & upwards..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	14	7	2	..	39
Radclyffe	Under 5 .....	..	2	5	1	4	..	..	..	..	43	..	..	..	..	..	25	..	..	..	103
	5 & upwards..	..	..	2	..	..	..	..	5	..	7	..	2	..	..	..	60	33	5	..	109
Rainford	Under 5 .....	..	..	..	..	3	1	..	..	..	1	..	..	..	..	..	5	1	..	..	6
	5 & upwards..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	7	6	3	..	21
Ramsbottom	Under 5 .....	..	6	1	..	1	..	..	..	..	8	..	..	..	..	..	19	1	1	..	39
	5 & upwards..	..	..	..	..	..	..	..	..	..	4	..	2	1	..	..	28	32	3	..	55
Rawtenstall (Borough)	Under 5 .....	..	3	4	3	10	4	..	..	..	11	..	..	..	..	..	31	..	1	..	107
	5 & upwards..	..	..	1	..	1	..	..	2	..	7	..	..	..	2	..	81	51	15	..	190

TABLE II.—Continued.

URBAN SANITARY DISTRICTS.		Mortality from subjoined causes, distinguishing Deaths of Children under five years of age.																					
		Age at Death.	Small-pox.	Measles.	Scarlatina.	Diphtheria.	Membranous Group.	Whooping Cough.	Continued Fever.			Cholera.	Rheumatic Fever.	Erysipelas.	Pyæmia.	Puerperal Fever.	Influenza.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Injuries.	All other Diseases.	
REDDISH	Under 5	1	1	13	1	..	9	16	16
	5 & upwards..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	3	7	11	16	2	24
RISHTON	Under 5	5	1	..	1	3	8	2	2	..	2	8	1	2	26
	5 & upwards..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	2	6	8	9	2	28
ROYTON	Under 5	16	2	1	..	1	15	..	5	1	2	..	11	15	1	..	7	37
	5 & upwards..	..	..	..	1	..	2	..	..	3	..	..	..	..	..	..	..	..	39	20	7	64
ST. ANNES-ON-THE-SEA.....	Under 5	1	4	5	6	13	13
	5 & upwards..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	4	1	22
Shelmersdale	Under 5	1	1	1	1	1	3	..	1	11	28	8	..	4	30
	5 & upwards..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	20	..	..	22
SOUTHPORT (Borough)	Under 5 .....	..	7	1	1	1	6	..	..	18	..	2	..	..	..	2	13	5	40	1	1	106
	5 & upwards..	..	..	1	1	1	1	3	..	1	..	..	..	..	..	..	..	65	76	89	16	264
STANDISH-WITH-LANGTREE	Under 5 .....	..	1	2	1	..	1	..	1	2	..	1	..	..	..	..	3	..	8	5	3	25
	5 & upwards..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	3	3	9	5	4	20
STRETTFORD	Under 5 .....	..	3	..	..	..	6	..	..	20	..	1	..	..	..	..	1	2	18	1	..	56
	5 & upwards..	..	..	..	..	..	..	2	..	3	..	..	..	..	..	..	..	28	34	23	5	128
SWINTON AND PENDLEBURY	Under 5 .....	..	2	1	..	..	15	..	..	34	..	1	1	..	..	..	..	3	44	2	5	135
	5 & upwards..	..	..	1	..	..	..	6	..	4	..	1	..	..	..	..	..	22	65	28	17	105
TRAWDEN	Under 5	1	5	1	5	3	..	7	9
	5 & upwards..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	3	..	8

URBAN
SANITARY DISTRICTS.

Continued
Fever.

URBAN SANITARY DISTRICTS.	Age at Death.	Fever.												Cholera.	Rheumatic Fever.	Erysipelas.	Pyæmia.	Puerperal Fever.	Influenza.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Injuries.	All other Diseases.
		Small-pox.	Measles.	Scarlatina.	Diphtheria.	Membranous Croup.	Whooping Cough.	Typhus.	Enteric or Typhoid.	Other or doubtful.	Diarrhoea or Dysentery.	Cholera.	Rheumatic Fever.												Erysipelas.	Pyæmia.	Puerperal Fever.	Influenza.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Injuries.	All other Diseases.
TURTON	Under 5 .....	..	1	1	1	..	..	..	..	2	..	..	..	..	..	..	..	..	..	1	12	..	..	16
	5 & upwards..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	9	10	2	39
TYLDESLEY-WITH-SHARPLEY	Under 5 .....	..	18	1	..	1	..	..	..	18	..	..	..	..	..	..	..	..	..	..	24	..	1	67
	5 & upwards..	..	..	..	..	..	..	..	10	..	..	..	..	..	..	..	..	..	..	11	20	13	6	54
ULVERSTON	Under 5 .....	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	10	..	..	17
	5 & upwards..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	12	19	8	72
UPHOLLAND	Under 5 .....	..	6	..	2	1	..	..	..	4	..	..	..	..	..	..	..	..	..	..	13	..	..	15
	5 & upwards..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	11	6	..	95
URNSTON	Under 5 .....	..	5	2	3	..	2	..	..	4	..	..	..	..	..	..	..	..	..	..	2	..	..	16
	5 & upwards..	..	..	..	6	..	..	..	..	..	..	..	..	..	1	..	..	..	..	6	9	6	..	18
WALTON-LE-DALE	Under 5 .....	..	1	..	..	..	..	..	4	13	..	..	..	..	..	..	..	..	..	..	12	..	..	46
	5 & upwards..	..	..	..	..	..	..	..	..	2	..	..	..	..	1	..	..	..	..	13	19	22	1	54
Wardle	Under 5 .....	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	6	..	..	17
	5 & upwards..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	24	12	27	..	123
WARRINGTON (Borough)	Under 5 .....	..	27	4	4	4	19	..	2	119	..	..	..	..	..	..	..	..	..	3	106	4	8	277
	5 & upwards..	..	1	7	2	..	..	..	12	8	..	..	..	..	..	..	..	..	..	69	121	68	25	262
WATERLOO-WITH-SEAFORTH	Under 5 .....	..	2	1	..	..	2	..	1	30	..	..	..	..	..	..	..	..	..	1	23	1	..	64
	5 & upwards..	..	1	..	3	1	..	..	2	1	..	..	..	..	..	..	..	..	..	25	24	16	5	75
WESTHOUGHTON	Under 5 .....	..	1	1	..	2	3	..	..	13	3	1	..	..	..	..	..	..	..	2	18	..	1	45
	5 & upwards..	..	..	1	..	..	..	..	8	1	1	..	5	..	..	..	..	..	..	3	9	23	9	41

TABLE II.—Continued.

URBAN SANITARY DISTRICTS.		Age at Death.	Mortality from subjoined causes, distinguishing Deaths of Children under five years of age.																						
			Small-pox.	Measles.	Scarlatina.	Diphtheria.	Membranous Croup.	Whooping Cough.	Continued Fever.				Cholera.	Rheumatic Fever.	Erysipelas.	Pyæmia.	Puerperal Fever.	Influenza.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Injuries.	All other Diseases.		
WHITEFIELD	Under 5	5 & upwards..	1	..	1	5	..	..	10	..	..	..	..	..	..	1	..	2	5	..	4	..	17 43
	Under 5	5 & upwards..	2	..	..	1	..	..	1	..	1	..	..	..	..	2	..	19	10	..	14	..	30 60
WIDNES (Borough).....	Under 5	5 & upwards..	1	2	1	..	..	..	7	..	..	..	..	..	..	3	..	12	56	..	9	..	184 130
	Under 5	5 & upwards..	..	2	1	1	2	6	..	..	16	..	1	4	..	..	2	3	1	144	29	149	87	23	94 382
WITHINGTON.....	Under 5	5 & upwards..	1	1	..	..	..	..	9	..	4	4	..	..	2	14	144	149	87	87	23	2	94 382
	Under 5	5 & upwards..	3	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	12 8
WITHNELL.....	Under 5	5 & upwards..	2	..	..	..	..	..	38 51
	Under 5	5 & upwards..	2	..	..	11	..	..	..	..	..	2	..	10	21	17	17	3	1	38 51

County of Lancaster, classified according to Ages and Localities, and showing also the Area and Population of such Localities, and the Birth-rate and Death-rate therein during the year.

RURAL SANITARY DISTRICTS.	Area in Statute Acre.	Population at all ages.		Annual Rates per 1000 of estimated population.				Rate of Infant Mortality measured by the proportion of deaths under 1 yr. to 1000 births.						Mortality from all causes at subjoined ages.				
		Census, 1891.	Estimate to middle of 1898.	Registered Births.	Birth- rate.	Death- rate.	Death- rate from the seven principal zymotic diseases.	Pluths Death- rate.	Respi- ratory Death- rate.	At all ages.	1 under 1 year.	1 and 2 under 12.	2 and 5 under 12.	5 and 15 under 15.	15 and 25 under 25.	25 and upwards.		
BARTON-UPON-IRWELL	6865	7159	8600	205	23.8	12.3	1.86	0.81	1.97	131	27	16	6	4	37	16		
BLACKBURN	20823	9243	9243	266	28.7	16.6	1.29	0.64	2.38	161	43	18	4	10	44	35		
BURNLEY	41161	14300	18500	413	22.3	*13.0	1.40	1.40	12.97	128	53	25	14	16	69	63		
Bury	14643	14051	14844	360	24.2	14.0	1.75	0.60	3.36	125	45	31	9	16	67	41		
CHORLEY	40043	16996	18100	532	29.3	15.6	0.99	0.77	2.54	139	74	20	13	16	81	80		
CROTHFORD (Lancashire portion)	30889	7101	7101	151	21.2	12.9	0.56	0.70	2.53	112	17	5	2	4	34	30		
FYLDE	47349	11938	15792	420	26.5	†14.1	§0.91	0.88	2.65	145	61	15	5	12	68	68		
GARSTANG	60199	12151	12151	254	20.9	13.0	0.24	0.65	2.38	94	24	8	4	10	51	61		
LANCASTER	55174	14477	12921	387	29.9	†14.1	0.92	0.85	1.85	131	51	16	11	11	45	59		
LEIGH	11568	7729	8300	269	32.4	•16.5	•2.16	0.48	2.04	137	37	16	2	6	32	38		

* Including 5 deaths occurring outside the District among persons belonging thereto, and excluding 4 deaths occurring within the District among persons not belonging thereto.
† Including deaths occurring outside the District among persons belonging thereto.
‡ Excluding 5 deaths occurring within the District among persons not belonging thereto.
§ Excluding death of a person not belonging to the District.
• Excluding 10 deaths in Asylum.
• Including 6 deaths occurring outside the District among persons belonging thereto

TABLE III.—Continued.

URBAN SANITARY DISTRICTS.	Area in Statute Acres.	Population at all ages.		Registered Births.	Annual Rates per 1000 of estimated population.					Rate of Infant Mortality measured by the proportion of deaths under 1 yr. to 1000 births.	Mortality from all causes at subjoined ages.						
		Census, 1891.	Estimate to middle of 1898.		Birth- rate.	Death- rate.	Death- rate from the seven principal Zymotic Diseases.	Phthisis Death- rate.	Respi- ratory Death- rate.		At all Ages.	Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.
LIMEHURST	5426	9020	9420	300	31·8	18·9	2·01	1·38	2·54	160	48	31	4	5	59	32	
LUNESDALE	75734	7347	7347	186	25·3	14·6	0·54	0·66	1·63	134	25	5	..	6	25	47	
PRESTON	49063	15200	15200	383	25·1	12·7	0·73	1·05	2·36	133	194	51	15	6	5	54	63
SEFTON.....	16924	7744	7744	173	22·3	10·5	1·42	1·29	1·42	92	16	5	5	6	31	19	
ULVERSTON	128927	18773	18773	418	22·2	12·7	0·63	0·74	1·43	90	240	38	12	13	12	63	102
WARRINGTON	14851	8423	11070	305	27·5	13·7	1·89	0·99	1·98	134	152	41	14	12	7	48	30
WEST LANCASHIRE	68614	25684	27541	653	23·7	*13·2	†1·23	†0·87	†1·96	122	382	80	31	17	30	112	112
WHISTON	31925	19108	18915	515	27·2	§11·2	||0·84	||0·47	||2·22	||106	499	68	35	14	22	233	127
WIGAN.....	11701	5700	5680	191	33·6	17·4	4·04	0·70	4·40	162	99	31	13	3	2	36	14

* Including 12 deaths occurring outside the District among persons belonging thereto, and excluding 28 deaths occurring within the District among persons not belonging thereto.

† Excluding 5 deaths occurring within the District among persons not belonging thereto.

‡ Including deaths occurring outside the District among persons belonging thereto. § Excluding 286 deaths in Workhouse, Asylum, and Sanatorium of persons not belonging to the District.

Excluding Workhouse and Asylum deaths.

TABLE IV. DEATHS registered during the year 1898, in the **RURAL SANITARY DISTRICTS** of the Administrative County of Lancaster, classified according to Diseases and Localities, and distinguishing Deaths of Children under five years of age.

RURAL SANITARY DISTRICTS.		Mortality from subjoined causes, distinguishing Deaths of Children under five years of age.																					
	Age at Death.	Small-pox.	Measles.	Scarlatina.	Diphtheria.	Membranous Croup.	Whooping Cough.	Continued Fever.					Cholera.	Rheumatic Fever.	Erysipelas.	Pyæmia.	Puerperal Fever.	Influenza.	Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Injuries.	All other Diseases.
								Typhus.	Enteric or Typhoid.	Other or doubtful.	Diarrhoea or Dysentery.	Typhoid.											
BARTON-UPON-IRWELL	Under 5 5 & upwards..	..	..	..	..	1	2	..	1	..	5	..	..	..	1	..	..	..	..	7	..	1	26
BLACKBURN	Under 5 5 & upwards..	..	1	1	1	..	..	..	7	..	1	..	..	..	..	..	..	..	..	10	9	4	24
BURNLEY	Under 5 5 & upwards..	..	3	1	1	1	2	..	3	..	5	..	..	..	..	..	..	5	6	9	..	..	44
Bury	Under 5 5 & upwards..	..	1	1	4	..	..	..	4	..	8	..	..	1	..	..	..	1	6	21	..	1	34
.....	Under 5 5 & upwards..	..	2	2	1	4	2	..	6	..	9	..	..	1	..	..	..	1	19	32	17	12	68
.....	Under 5 5 & upwards..	..	..	1	1	..	..	..	..	..	3	..	..	..	..	..	..	..	..	23	23	..	34
.....	Under 5 5 & upwards..	..	..	2	1	2	..	..	..	..	10	..	..	..	..	..	..	..	..	27	11	11	52
CHORLEY	Under 5 5 & upwards..	..	..	2	1	2	..	..	2	1	..	..	2	1	..	..	..	4	1	15	..	2	61
.....	Under 5 5 & upwards..	..	..	2	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	31	23	11	100
CLITHEROE (Lancashire portion) ..	Under 5 5 & upwards..	..	..	1	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	3	..	..	17
.....	Under 5 5 & upwards..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	15	12	5	31

TABLE IV.—Continued.

RURAL SANITARY DISTRICTS.		Age at Death.	Mortality from subjoined causes, distinguishing Deaths of Children under five years of age.																					
			Small-pox.	Measles.	Scarlatina.	Diphtheria.	Membranous Croup.	Whooping Cough.	Continued Fever.				Cholera.	Rheumatic Fever.	Erysipelas.	Pyæmia.	Puerperal Fever.	Influenza.	Phtisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Injuries.	All other Diseases.	
FYLDE	Under 5 5 & upwards..	..	2	..	..	1	1	1	..	4	..	6	..	1	..	..	..	1	..	..	22	2	..	40
		..	..	..	1	..	..	..	..	..	1	..	1	..	..	..	..	6	..	14	20	25	10	71
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	4	2	..	25
GARSTANG	Under 5 5 & upwards..	..	..	..	..	..	..	..	2	..	1	..	..	..	..	..	..	..	..	..	25	16	..	25
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	6	69
		..	..	..	1	..	1	..	..	3	..	5	..	1	..	..	2	..	1	10	14	..	..	44
LANCASTER	Under 5 5 & upwards..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	17	..	..	76
		..	2	1	..	..	..	..	..	1	..	6	..	..	1	..	..	..	..	4	9	..	2	32
		..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	1	..	..	8	8	12	4	46
LEIGH	Under 5 5 & upwards..	..	..	..	2	1	..	..	3	..	10	..	..	..	..	..	..	..	..	13	12	..	3	48
		..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	12	8	11	52
		..	..	1	..	..	..	..	..	..	..	2	..	..	..	..	..	1	..	5	7	9	..	21
LIMEHURST	Under 5 5 & upwards..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	55
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	55
	
LUNESDALE	Under 5 5 & upwards..	..	..	..	1	..	..	..	..	..	2	..	..	..	..	..	..	..	..	5	..	..	1	21
		..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	55
	
PRESTON	Under 5 5 & upwards..	..	3	..	..	..	1	..	1	..	4	..	..	..	..	..	3	..	1	14	22	15	..	43
		..	..	..	..	..	..	..	..	..	2	..	1	..	..	..	..	..	15	22	15	..	67	
	
SEFTON	Under 5 5 & upwards..	..	..	1	..	1	1	1	..	3	5	..	..	..	..	..	..	..	..	8	10	..	..	10
		..	..	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	10	8	10	2	26
	
ULVERSTON	Under 5 6 & upwards..	..	..	1	..	..	2	1	2	..	..	..	..	..	..	..	..	..	1	7	1	1	1	37
		..	..	1	3	..	..	..	..	..	2	..	..	..	..	..	..	9	13	20	10	6	119	
	
WARRINGTON	Under 5 5 & upwards..	..	3	..	..	..	2	3	..	..	12	..	..	..	..	..	..	..	1	6	..	2	29	
		..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	10	16	11	12	44	
	

Mortality from subjoined causes, distinguishing Deaths of Children under five years of age.

RURAL SANITARY DISTRICTS.	Age at Death.	Continued Fevers.																All other Diseases.				
		Small-pox.	Measles.	Scarlatina.	Diphtheria.	Membranous Croup.	Whooping Cough.	Typhus.	Enteric or Typhoid.	Other or doubtful.	Diarrhoea or Dysentery.	Cholera.	Rheumatic Fever.	Erysipelas.	Pyæmia.	Puerperal Fever.	Influenza.		Phthisis.	Bronchitis, Pneumonia, and Pleurisy.	Heart Disease.	Injuries.
WEST LANCASHIRE.....	Under 5 .....	..	3	1	1	2	6	..	1	..	7	..	..	..	..	..	..	..	18	1	1	70
	5 & upwards..	..	2	1	3	..	..	..	8	..	5	..	1	2	..	1	8	20	35	33	17	134
WHINSTON	Under 5 .....	..	3	..	1	1	3	..	..	..	7	..	1	..	..	..	1	..	17	1	3	65
	5 & upwards..	..	..	1	..	..	..	..	4	..	1	..	..	..	..	1	9	54	68	30	10	218
WIGAN	Under 5 .....	..	3	2	..	..	..	..	..	..	11	..	..	..	..	..	..	..	10	..	2	16
	5 & upwards..	..	..	2	..	..	..	..	2	..	3	..	..	..	..	..	1	4	15	4	8	16

TABLE V.—DEATHS and CASES NOTIFIED (or Ascertained) in 132 Districts supplying Monthly Returns during the Year ending December 31st, 1898.

MONTH.	FEVERS.																Deaths from all Causes.												
	Small-pox.		Diphtheria.		Membranous Group.		Erysipelas.		Scarlet Fever.		Typhus.		Enteric.		Other or doubtful.		Puer-peral.		Measles.		Chicken pox.		Whooping Cough.		Total of preceding columns.		Deaths from		
	Notified Cases.	Deaths.	Notified Cases.	Deaths.	Notified Cases.	Deaths.	Notified Cases.	Deaths.	Notified Cases.	Deaths.	Notified Cases.	Deaths.	Notified Cases.	Deaths.	Notified Cases.	Deaths.	Notified Cases.	Deaths.	Notified Cases.	Deaths.	Notified Cases.	Deaths.	Notified Cases.	Deaths.	Notified Cases.	Deaths.	Diarrhoea & Cholera.	Infectious Phenitis.	Influenza.
January.....	..	62	15	14	12	156	7	434	18	1	..	229	36	10	2	16	5	89	55	..	..	5	35	1016	155	16	602	22	1883
February ..	..	69	12	12	10	103	5	389	25	..	..	164	41	8	1	13	6	100	46	..	..	6	23	864	169	26	453	38	2278
March	3	53	17	17	13	127	5	408	10	..	..	160	31	5	1	15	10	117	65	2	..	3	36	910	189	15	611	45	2674
April	1	26	9	19	15	130	7	396	20	..	..	129	28	5	..	11	6	153	63	..	..	2	27	872	175	11	570	58	2406
May .....	..	51	12	11	12	97	6	362	29	..	..	101	22	7	1	16	10	66	19	..	..	..	34	711	145	29	468	47	2397
June	1	34	5	10	10	91	2	349	8	..	..	95	20	9	..	13	5	146	40	..	..	4	35	752	125	25	396	26	2115
July .....	..	77	12	6	7	62	5	360	11	..	..	102	17	7	..	6	3	151	39	..	..	..	18	771	112	68	287	14	1930
August ....	..	58	11	8	6	91	2	322	18	3	..	198	28	8	1	10	3	27	29	..	..	1	30	726	128	438	295	12	2573
September...	..	79	12	8	5	82	3	325	12	1	..	352	47	12	2	9	4	23	17	..	..	19	24	910	126	841	226	11	3130
October .....	..	72	10	20	10	97	2	552	17	4	2	486	22	11	..	11	5	73	11	2	..	20	13	1348	92	205	374	14	2390
November ..	1	62	14	14	15	98	5	512	12	..	..	333	61	5	1	10	4	81	34	..	..	4	20	1120	166	43	466	14	2259
December ..	..	99	12	17	11	133	5	524	21	..	..	288	90	20	..	10	4	133	32	..	1	2	36	1226	212	29	580	16	2422
Year.....	6	1742	141	156	126	1267	54	4933	201	9	2	2637	443	107	9	140	65	1159	450	4	1	66	331	11226	1824	1746	5328	317	28457

* Notified in 7 Districts.

ISOLATION HOSPITALS.

Attached to the position which I have the honour to-day **Introductory.** to occupy is the privilege, and, at the same time, very great responsibility of having to deliver an opening address. I have experienced much difficulty in selecting a theme suitable for your consideration, and on which I can speak with some experience. During the past quarter of a century the advance of sanitation has been most marked, but more especially during the past ten years. A Medical Officer of Health, in order to carry out his work successfully, and gain supremacy over the unseen relentless foes whose efforts are constantly directed against mankind, has ever to be on the alert, and ready to take advantage of the labours of the chemist, the engineer, and the bacteriologist. The widened area of sanitation has therefore made it necessary for those carrying out practical work to associate themselves with scientists specially engaged

*Address by Edward Sergeant, M.R.C.S., L.R.C.P. (Lond.), L.S.Sc., County Medical Officer of Health, as President of Conference of Medical Officers of Health, Congress of the Royal Institute of Public Health, Blackpool, Sept., 1899.

in elucidating the many obscure problems connected with preventive medicine. The assistance given by the bacteriologist in the *early diagnosis* of certain zymotic diseases, as, for instance, tuberculosis, diphtheria, typhoid fever, cholera, &c., enables the sanitary officials to be prompt in taking precautionary measures. Many of the sanitary authorities in this county are much indebted to Prof. Delépine for allowing them to take advantage of his valuable services on the payment of a nominal fee. If it had not been for action initiated by him and Prof. Boyce, of Liverpool in this matter, the county authorities would have had to incur a large expenditure in the formation of an institute devoted to bacteriological research.

The increased attention paid by the public to health requirements, and the additional duties thrown on local authorities from time to time, lead one to hope that districts will be more adequately provided with officers to carry out sanitary work than in the past, and that the remuneration will be commensurate with the importance of the duties they are called upon to perform.

Infectious
Disease
(Notification)
Extension Act

I think you will agree with me that legislative enactments do not usually receive the unanimous approval that has been accorded to the Act for the extension of infectious disease notification, which will come into operation on the 1st day of January next year. After an experience of ten years' working of the Act of 1889, it has been decided by parliament to make notification compulsory in every urban, rural, and port sanitary district in England and Wales. As you are aware, the Act now in force, although permissive, has been widely adopted by authorities, and has formed the basis of excellent work for the repression of epidemic disease. The application of compulsory notification to the whole country will do away with the dangers that frequently arose owing to the existence of districts unprovided with the benefits of notification; and it will also secure uniformity in the statistics relating to

infectious disease which will greatly enhance their value. Many of you may remember that sanitary authorities who procured notification previous to 1889 by local Acts had to bear the brunt of much opposition, and the lot of the Medical Officer of Health was not made too happy. All sorts of difficulties were predicted, even by medical practitioners, who have done so much for sanitation; but, fortunately, experience has shown that the fears respecting the operation of notification have not been well founded. In attaining so great a reform, sanitarians can afford to rejoice, and, at the same time, forget the heart-burnings resulting from their early labours.

Having obtained compulsory notification, it follows, as a matter of course, that provision should be made by sanitary bodies for isolating in suitable hospitals the patients notified as suffering from infectious disease. It will not be necessary for me to go to the trouble of proving the value of isolation hospitals, and the impossibility of controlling—if not always arresting—the spread of certain infectious diseases without them. With few exceptions, local authorities admit the desirability of such provision; yet, year after year, they delay taking action to save life in order to save their pockets. In districts where active measures are taken to protect the inhabitants against infection, as many as from 80 to 90 per cent. of the total cases notified receive hospital isolation, and it is found that when a well-conducted hospital is provided in a district it soon becomes popular, and few patients care to remain at home with conditions not always satisfactory for proper nursing or purposes of isolation, but prefer to take advantage of a hospital fitted up with all the modern appliances for the successful treatment of disease. No doubt instances will occur where difficulties are experienced in removing cases to the hospital, but these may be overcome with patience and tact. Should, however, a conflict occur with the authority, removal can be effected by the order of any justice under section 24 of the Public Health Act, 1875, for

The need of
isolation
hospitals.

Removal of
patients.

it can readily be shown that “proper lodging and accommodation” cannot be provided for an infected patient in the ordinary artisan cottage. The recent judgment of Mr. Justice Day, in the case of *Warwick v. Graham*, on appeal by the Workington corporation against the refusal of the magistrates to make a removal order shows that “proper lodging or accommodation” does not entirely concern the patient but was “clearly directed to the protection of persons from infection, and not only to the protection of the sick person himself.”

The formation
of joint
isolation
hospitals.

Under section 131 of the Public Health Act, 1875, local authorities, as you are aware, may provide, for the inhabitants of their districts, hospitals, either alone, or jointly, or contract for the use of a hospital. Owing to the power being permissive, comparatively few authorities—in this county not more than 50 per cent.—had moved in the matter previous to the passing of the Isolation Hospitals Act, 1893. Hospital provision is now by the latter Act practically made compulsory in administrative counties, for county councils are authorised to constitute “hospital districts” of a single local area, or two or more local areas, on the application of not less than 25 ratepayers, or on the report of the Medical Officer of Health for the County. As showing the progress made in hospital construction, I may mention that in the administrative county of Lancaster during the past five years, 15 districts, with a population of 241,063, representing 12·7 per cent. of the county population, and an area of 297,968 acres, have been provided with hospitals, and 16 districts, with an area of 207,413 acres, and a population of 175,848, or 9·2 per cent of the county population, have been formed into hospital districts by Orders emanating from the county council. In addition, 3 large hospital districts have been constituted, with the sole object of providing accommodation for the isolation of cases of small-pox. These combinations are very extensive, and include several districts already provided with hospitals for the treatment of ordinary infectious diseases. As an example of a

Special joint
combinations
for dealing
with
small-pox.

small-pox area, attention may be called to the Fylde, Preston, and Garstang Joint Hospital District, which comprises the following local areas :—

			Popula- tion.	Area in Acres.
Fylde (Rural)	Representing a Joint Hospital District for ordinary infectious diseases.	Representing a Joint Hospital District for Small-pox.	15,792	47,319
Fleetwood (Urban).....			13,500	2,848
Kirkham (Urban)			4,094	857
Lytham (Urban).....			5,950	2,238
St. Annes-on-the-Sea (Urban)..			5,340	3,212
Blackpool (Borough)	45,414		3,495	
Preston (Rural).....	Representing a Joint Hospital District for ordinary infectious diseases.		15,200	49,063
Fulwood (Urban)			2,690	2,117
Longridge (Urban).....			4,500	2,858
Garstang (Rural).....			12,151	60,199
TOTAL.....			124,631	174,236

Those who have experience in hospital construction will know how difficult it is, for districts with populations not exceeding five to ten thousand inhabitants, to find money for making suitable provision for the treatment of ordinary infectious diseases, and the annual hospital expenditure becomes a serious burden, but by combination with two or three other neighbouring authorities better accommodation can be provided, and more efficient management can be secured at a reasonable cost. This view has actuated the council in the formation of the joint hospital districts in this county. Combination is all the more necessary in the case of small-pox, owing to the almost insuperable difficulties often experienced in securing a site, where, to comply with the requirements of

the Local Government Board, it would not have, within a quarter of a mile of it, as a centre, a hospital whether for infectious diseases or not, or a workhouse or any similar establishment, or a population of 150 to 200 persons. Then again we know that small-pox differs from the ordinary infectious diseases usually dealt with, for as a rule it is detected in its early stage before the patient becomes seriously ill, and no harm is likely to result from a journey of from 10 to 12 miles in a suitable ambulance carriage. Dr. Collie stated before the Small-pox and Fever Hospitals Commission that nearly every case of small-pox might be removed 20 miles as safely as one. He would say that 16 or 17 miles would not hurt, and that in properly constructed ambulances the worst cases might be brought from their homes to the hospital under proper superintendence without hastening death. Small-pox visits have been fortunately infrequent during the past few years, but provision must be made for such occurrences, and a comparatively small hospital, efficient in every respect, and always kept *in readiness*, will better and less expensively serve a large number of districts than several temporary and unsuitable buildings that have in a hurry to be made fit for the reception of patients.

Separate
isolation
hospitals for
small-pox.

Hospital
committee.

In forming a committee for the provision and management of these hospitals, the county council invariably appoint representatives selected by the local area or local areas of the district, and the number of representatives allotted to each district is in proportion to their contribution. When a hospital committee is constituted it becomes a body corporate, having a common seal, and where a hospital district consists of more than one local area all the expenses incurred by the committee, except patients' expenses, are paid out of a common fund to which the local authorities in the hospital district contribute in such proportions as the county council by their Order constituting the district may determine.

Payment
of expenses.

The hospital expenses are classified as

- (a) "Structural expenses," including the purchase of the site and the original cost of providing the hospital and fitting it with the necessary appliances and furniture, also any permanent extension or enlargement of the hospital, or any alteration or repair of the drainage and any structural repairs.
- (b) "Establishment expenses," including the cost of ordinary repairs, painting, cleaning, and the renewal or keeping in order of the appliances and furniture, also the salaries of the staff.
- (c) "Patients' expenses," including the cost of conveying, removing, feeding, providing medicines, disinfecting, and all other things required for patients individually.

In all the Orders hitherto made in this county the structural and establishment expenses have to be paid *pro rata* according to the number of inhabitants in their respective districts, as shown by the last census in force, while the cost of maintaining patients is charged to the constituent authorities from whose districts the patients have been received into the hospital. It is well to note that the Isolation Free admission of patients. Hospitals Act recognises the principle that hospitals supported out of the rates for the protection of the community against the spread of infectious diseases should be free to the inhabitants in case of need. The successful use of hospitals formed under the Public Health Act, 1875, has been much interfered with owing to the 132nd Section, which states that expenses incurred by a local authority in maintaining, in a hospital, a patient who is not a pauper *shall* be deemed a debt due from such a patient to the local authority, and *may* be recovered from him within six months after his discharge. To the mind not attuned to legal technicalities it would appear that local authorities had a discretionary power as to whether they should

recover from patients maintenance charges, and comparatively few authorities care to incur the odium of recovering fees which form so small a proportion of their total expenditure. There are, however, authorities who on the advice of eminent counsel consider it their duty to recover the cost of maintenance, with the result that they experience much difficulty in removing patients.

Accommodation of an exceptional character.

Hospitals should, in regard to structure and appliances, be in every respect suitable for the best treatment of the patients admitted, so that authorities will not have any need to provide "accommodation of an exceptional character," as mentioned in the 16th Section of the Isolation Hospitals Act. Of course, if such accommodation is available, there may be no objection to its being used—but for the sake of a few pounds receivable as "special patients'" expenses, it is not desirable to encourage a system which may tend to produce a feeling of jealousy among the large majority of patients who cannot pay; and it is conceivable that the demands of the paying patients might to some extent divert the attention of the nurse from the poorer patients. I therefore look with suspicion on any system of dividing patients into paying and non-paying classes, and recommend that the accommodation of hospitals provided out of the public purse should be free and suitable for the treatment of all classes.

Borrowing powers.

I may point out that the committees formed under the Isolation Hospitals Act are required to borrow money from the county council, and a letter written by the Local Government Board states that as the county council are the borrowing authority under Section 22 of the Act, "the Board must look to the county council for the formation of any scheme of hospital provision, which may be made the subject of an application for sanction to a loan, and the Board, therefore, cannot discuss with the hospital committee the preliminary details of such a scheme," and further, the Board will require to be satisfied that the hospital scheme would generally

be acceptable. This mode of procedure is somewhat roundabout, and tends to create delays in carrying out the work of hospital provision. Under the Act the county council is required to charge four per cent. interest on all loans borrowed for hospital purposes, and much objection has been taken to this high rate of interest. To obviate the difficulty the Lancashire County Council have hitherto lent money to hospital committees from the local loans fund, and the loans bearing interest at the rate of from $3\frac{1}{8}$ to $3\frac{1}{2}$ per cent. have been made repayable to the county council in annual instalments, varying from 25 to 30 years.

Power is also given to county councils to contribute out of the county rate a capital or annual sum towards the structural and the establishment expenses of an isolation hospital, or to either class of expenses. This question has been frequently discussed by county authorities, and in Derbyshire arrangements have, I believe, been made to subscribe one-fifth of the cost of construction, so long as the total cost does not exceed £200 per bed, the number of beds does not exceed 1 per 2,000 of the population, and finally that the contributions towards any hospital district does not exceed $\text{£}3\frac{1}{8}$ per £1,000 rateable value; also to remit as a contribution towards establishment expenses the difference between the interest paid by the county council for any loans and the 4 per cent. they receive from the hospital committees. It is interesting to note that no contribution can be made to hospitals already provided or to be hereafter provided by a joint hospital board under the Public Health Act, 1875. The Cheshire County Council, in 1896, with a desire to remove this hardship, applied to the Local Government Board for sanction to make contributions out of the county fund towards the erection of any new isolation hospitals, or to the maintenance of any existing hospitals, but failed, and in consequence the county council gave up their project respecting contributions. The difficulties in the way of fair and equitable

Contribution
towards
isolation
hospitals.

contribution towards hospital boards already existing, in a great measure decided the Lancashire County Council not to make any contribution to isolation hospitals and, as far as I am aware, local authorities in this county are satisfied to carry out unaided their duties in regard to hospital provision.

Character of site.

In conducting a local inquiry into the necessity for the establishment of an isolation hospital, it is incumbent on the county council to inquire as to "the proper site for the hospital." Now, the question of site is an important one, and great care should be taken to secure a situation as healthy as possible. Consideration should be paid to the configuration of the land, the character of the soil, and the underground and surface drainage. An abundant supply of good water should be available, as well as every facility for getting rid of the sewage. If possible, a moderate elevation gently sloping in a southerly direction should be chosen, with a gravelly or sandy soil. The surrounding land should be open and not likely to be built upon; the proximity of works carrying on operations likely to pollute the air, and perhaps affect injuriously the patients being treated in the hospital, should be avoided. The latter recommendation is not superfluous, for I have had occasion to object to local authorities, in their misplaced desire for economy, selecting hospital sites in the neighbourhood of destructors, tips for the deposit of ashpit refuse, and, in two instances, sewage works. The Medical Officer of Health to one of the Lancashire towns not long ago reported strongly against the erection of a hospital on a site exposed to the emanations from sewage works, cynically observing that it should be "well understood by the public that the object of the sanitary authority is to cure the patients as well as to prevent the spread of infectious diseases."

Accessibility.

In selecting a site, consideration must be given to the area and population the hospital has to serve. If it is for a populous centre it should be conveniently near—say within two or three miles—for many object to send their friends to a

distance, owing to the time and trouble entailed in visiting the hospital in case of necessity. In rural or semi-rural districts it is not desirable to locate an isolation hospital more than five or six miles from the populous portions of the area concerned, for infectious diseases are more liable to break out and give rise to greater anxiety in urban than in the purely rural localities. With good roads and a well-designed ambulance carriage persons suffering from scarlet fever, diphtheria, or typhoid fever may be conveyed long distances without injurious effects. In all cases removal must be carried out with the greatest care, and under certain conditions it will be better to leave patients at home than jeopardise their recovery. Even in cases of small-pox it will sometimes be found risky to remove patients during a severe premonitory stage, or when acute secondary fever has set in.

The amount of land required for a site varies necessarily according to the accommodation to be provided, but, taking into consideration that the hospital pavilions are one-storied, with a sanitary zone of 40 feet, and that the buildings for administrative purposes, laundry work, disinfection, &c., are detached and at a safe distance from one another, it follows that the area of land required will be pretty extensive. Sir Richard Thorne Thorne has expressed an opinion that "it is as a rule undesirable to select any site less than some two acres in extent, and even then regard should be had to the need for extension of hospital buildings, whether for temporary purposes or owing to increase of population." Since 1895 seven hospital sites have been acquired in this county by joint boards, which vary in extent from $4\frac{1}{2}$ to 16 acres. The distance to which the infection of small-pox may travel renders the establishment of separate hospitals on exceptionally well isolated sites a necessity. With a desire to provide reasonable isolation for small-pox, and not injure adjoining landowners, the Fylde small-pox hospital committee recently secured a site of 12 acres, and the Radcliffe, &c.,

Area of land
required.

Hospitals for
small-pox
must have
exceptional
isolation.

joint committee have acquired land for the erection of separate hospitals for small-pox and ordinary infectious diseases to the extent of 50 acres. The hospital buildings, with the land required for a sanitary zone, will be enclosed by a substantial wall or close fence 6 feet 6 inches high, in order to prevent any communication between persons in the hospital and those outside.

The objects of hospital isolation.

In designing the hospital, the primary object aimed at, is to render isolation of the sick as complete as possible for the protection of the public, and to guard against the danger of inmates suffering from one disease infecting those suffering from another infectious disease. This consideration will not militate against every provision being made for the comfort of the patients and their successful treatment. Occasionally, existing

Transforming existing buildings into hospitals.

buildings, if sufficiently isolated, may be made to satisfy the needs of districts containing small populations, but, as pointed out by Sir Rd. Thorne Thorne, "they are not likely to secure that success in isolation which may be expected to follow on the erection of buildings specially adapted to the reception of cases of infectious disease; and they are never adapted to the requirements of the more populous and especially populous urban districts, where permanent provision for the simultaneous treatment of at least two different infectious diseases in both sexes must necessarily be made." The same may be said of

Corrugated iron, wooden, or movable structures.

corrugated iron or wooden structures; they are also unsightly, and difficult to keep warm in winter and sufficiently cool in summer. It has been suggested in certain rural districts, that movable erections might be provided; and instead of patients being conveyed long distances the hospital might be brought to them. I do not favour such a scheme, for an ambulance would be required whether the hospital was movable or fixed, and I have already shown that the condition of a patient is frequently uninfluenced by a conveyance of several miles. Further, much delay may be caused in preparing a site for a movable structure, and the cost and wear and

tear of moving and re-erection would almost be as great as a permanent building.

An isolation hospital, however small, should have provision for at least treating patients suffering from two different infectious diseases in male and female wards, as well as providing for the accommodation of nurses in a detached administrative block. An observation ward will also be required, in which doubtful cases can be isolated from the other patients until the nature of the illness can be properly diagnosed, and, in addition, separate buildings for the disinfecting apparatus, laundry, mortuary, &c. I do not propose to enter into the details of construction, but assume that the requirements of the Local Government Board as to air space, floor space, lighting, heating, ventilation, &c., will be strictly adhered to.

The general opinion of those who have experience of hospital requirements is in favour of permanent structures, well erected, neat in design, yet not too plain. Many of the hospitals erected a few years ago represent a grudging spirit on the part of the authorities and are positively ugly. Prof. Wynter Blyth asserts that "if economy alone is to be considered, the result will be poor, plain, repulsive buildings, and an entire waste of money, for the hospital will not be utilised. The history of isolation hospital construction abounds with examples of this kind. A false economy has resulted in running up some building or buildings having the external appearance of cow-sheds and destitute of comfort within, which only the poorest class under compulsion could be induced to make use of." Such hospitals were built at the average rate of from £150 to £200 per bed, but with the requirements now advocated, and the advance of public opinion on the subject, I do not think proper up-to-date accommodation can be provided under £300 to £350 per bed, excluding cost of site. The cost of constructing two hospitals in this county during the past year has, I am informed, approached £450 per bed.

Isolation of different infectious diseases.

Hospitals should be permanent structures and well built.

Beds required.

The number of cases for which permanent provision should be made, as pointed out in the hospital memorandum of the Local Government Board "must depend upon various considerations, among which the size and the growth of the town, the housing and habits of its population, and the traffic of the town with other places, are the most important." It has generally been considered advisable to provide one bed per 1,000 of the population in crowded urban districts, but fewer will be required in small towns or rural districts, and a portion of this estimated accommodation may be specially set apart for the isolation of small-pox.

The desirability of establishing hospitals for the isolation and treatment of phthisis.

The diseases which committees have power to deal with under the Isolation Hospitals Act are those compulsorily notifiable, and the list may be extended to "any other infectious disease by order of the county council." It seems to me that in the near future public bodies such as large towns and administrative counties, either alone or in combination, will have to make provision for the isolation and treatment of the disease which is now occupying so much attention, namely, phthisis. The reading of the section of the Act just quoted would almost indicate that action could be taken to form hospital districts for dealing with phthisis without any further legislative enactment. Since 1882, when Koch discovered the tubercle bacillus, phthisis or pulmonary tuberculosis has become generally recognised as infectious. The chief danger to human beings, from consumptives, is through the infective expectoration or sputum which, when dry, becomes pulverised and may gain access to the lungs of the susceptible, and so implant disease. Precautionary measures must be taken to prevent tuberculous sputum being distributed to the detriment of the public, and authorities should be enabled to obtain information, either voluntarily or otherwise, of all cases of phthisis. With healthy home surroundings, open-air life, and sunlight the disease can be cured. To give sufferers from phthisis every chance of cure, and protect the public against a source of danger, laudable

efforts are being made by associations recently formed in various parts of the country with the object, among others, of promoting the establishment of sanatoria. Much good will result from their action, but to seriously tackle this gigantic evil, public bodies must be awakened to a sense of the new duties which are now imposed upon them. It was with great satisfaction that I heard Prof. Sims Woodhead assert, at Birmingham, two years ago, in regard to heredity, "that no member of a tuberculous family need despair of evading the dread enemy of his race; that children of tuberculous parents may be placed under such conditions that they will never contract the disease. They do not inherit tuberculosis from their parents, though they may undoubtedly inherit those weaknesses of constitution and tissues which render them peculiarly liable to harbour and nourish the parasites that in their parents have done such damage. All that is necessary to do to enable the child to withstand the attacks of tuberculosis is to strengthen the tissues, build up the constitution by good food, fresh air and exercise, and while you are doing this, to place him under such conditions that the tubercle bacillus can gain no access to these tissues, and bye and bye there will come a time at which the attacks of the bacillus are as futile as they are against the child who inherits from his parents all those protective agents with which healthy children are endowed for the warding off of the onslaught of the tubercle bacillus and other disease-producing micro-organisms."

My aim in thus briefly referring to phthisis is to give support to those who are recommending precautionary measures to be taken against its spread, and further, to suggest that preventive action should be associated with provision, out of the public purse, of suitable means for its cure. That the ravages from the disease are serious must be admitted, when I tell you that in this county—which does not differ much from the rest of the country—during the past 10 years 6·9 per cent. of the total deaths have been victims to phthisis, and they have

equalled 60 per cent. of the total deaths recorded from the principal zymotic diseases. The relative frequency of the various causes of death will be seen in the accompanying chart. It is satisfactory to observe that, like the rest of England, Lancashire has for some years experienced—owing to better sanitation, improved conditions of labour, and other causes—a decided reduction in the phthisis mortality. Much, however, remains to be done to remove the scourge which afflicts our race, and casts a gloom throughout the length and breadth of our land.

COUNTY OF LANCASTER

Phthisis and Principal Zymotic Deaths 1889-98.



